

ORAL ARGUMENT NOT YET SCHEDULED

No. 22-7063

UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

AMERICAN SOCIETY FOR TESTING AND MATERIALS, et al.,
Appellants

v.

PUBLIC.RESOURCE.ORG, INC.,
Appellee

Appeal from the United States District Court
for the District of Columbia
Hon. Tanya S. Chutkan, No. 1:13-cv-1215-TSC

PUBLIC APPENDIX
VOLUME 1 (JA1-JA493)
MATERIAL UNDER SEAL IN SEPARATE SUPPLEMENT

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TABLE OF CONTENTS**VOLUME 1 (JA1-JA493)**

Docket Sheet, American Society for Testing and Materials, et al v. Public.Resource.Org, Inc., No. 13-cv-1215	JA1
Exhibit A to Complaint, DKT. 1-1	JA35
Transcript of 11/04/15 Status Hearing before Judge Tanya S. Chutkan, DKT. 116.....	JA45
Proposed Order Granting Plaintiffs’ Motion for Leave to File Under Seal, DKT. 117-1	JA66
Exhibit 1 to Declaration of Jordana S. Rubel in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 117-2 (Material Under Seal).....	JA68
Plaintiffs’ Memorandum of Law in Support of Motion for Summary Judgment and Permanent Injunction, DKT. 118-1	JA182
Plaintiffs’ Statement of Material Facts in Support of Motion for Summary Judgment, DKT. 118-2.....	JA256
Declaration of Dennis J. Berry and Exhibits in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-3	JA306
Declaration of Steven Cramer and Exhibits in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-4	JA336
Declaration of James Golinveaux in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-5	JA348
Declaration of Randy Jennings and Exhibit in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-6	JA352
Declaration of Thomas B. O’Brien, Jr. and Exhibits in Support of Plaintiffs’ Motion for Summary Judgment, DKT. 118-7	JA362

VOLUME 2 (JA494-JA1297)

Declaration of Thomas B. O'Brien, Jr. and Exhibits in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-7 (continued).....	JA494
Declaration of James T. Pauley and Exhibits in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-8	JA629
Declaration of Kevin Reinertson in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-9	JA663
Declaration of Stephanie Reiniche and Exhibits in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-10	JA668
Declaration of James Thomas in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-11	JA697
Exhibit 1 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12 (Jarosz Report) (Material Under Seal).....	JA704
Exhibit 2 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12	JA818
Exhibit 3 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12 (Material Under Seal).....	JA896
Exhibit 8 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12	JA999
Exhibit 10 to Declaration of Jordana S. Rubel in Support of Plaintiffs' Motion for Summary Judgment, DKT. 118-12	JA1005
Defendant Public.Resource.Org's Statement of Material Facts in Support of Motion for Summary Judgment, DKT. 120-3 (Material Under Seal) (Public Version at DKT. 121-2)	JA1014
Declaration of Matthew Becker in Support of Public.Resource.Org's Motion for Summary Judgment, DKT. 120-4 (Material Under Seal)	JA1050

Exhibit 4 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-6 (Material Under Seal)..... JA1072

Exhibit 22 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-9 (Material Under Seal)..... JA1092

Exhibit 53 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-10 (Material Under Seal)..... JA1100

Exhibit 74 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-11 (Material Under Seal)..... JA1119

Exhibit 80 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-14 (Material Under Seal)..... JA1122

Exhibit 87 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-20 (Material Under Seal)..... JA1125

Exhibit 88 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-21 (Material Under Seal)..... JA1136

Exhibit 89 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-22 (Material Under Seal)..... JA1149

Exhibit 90 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-23 (Material Under Seal)..... JA1204

Exhibit 91 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-24 (Material Under Seal)..... JA1206

Exhibit 92 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-25 (Material Under Seal)..... JA1208

Exhibit 93 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-26 (Material Under Seal)..... JA1231

Exhibit 94 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-27 (Material Under Seal)..... JA1238

Exhibit 129 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-29 (Material Under Seal)..... JA1245

Exhibit 146 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-33 (Material Under Seal)..... JA1254

Exhibit 150 to Declaration of Matthew Becker in Support of
Public.Resource.Org's Motion for Summary Judgment,
DKT. 120-34 (Material Under Seal)..... JA1257

Declaration of Carl Malamud in Support of Public.Resource.Org's
Motion for Summary Judgment, DKT. 121-5 JA1260

Exhibits 1-10 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-1..... JA1271

VOLUME 3 (JA1298-JA1677)

Exhibits 1-10 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-1 (continued)..... JA1298

Exhibits 11-20 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-2..... JA1569

VOLUME 4 (JA1678-JA2057)

Exhibits 11-20 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-2 (continued) JA1678

Exhibits 21-40 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-3 JA1938

VOLUME 5 (JA2058-JA2437)

Exhibits 21-40 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-3 (continued) JA2058

Exhibits 41-60 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-4 JA2107

Exhibits 61-80 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-5 JA2204

Exhibits 61-80 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-5 JA2258

Exhibits 81-100 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-6 JA2296

VOLUME 6 (JA2438-JA2817)

Exhibits 81-100 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-6 (continued) JA2438

Exhibits 101-120 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-7 JA2527

Exhibits 121-140 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-8 JA2644

VOLUME 7 (JA2818-JA4847)

Exhibits 141-157 to Public.Resource.Org's Motion for Summary
Judgment, DKT. 122-9 JA2818

Exhibit 3 to Declaration of Kathleen Lu in Support of Public.Resource.Org’s Motion to Strike, DKT. 124-5	JA2952
Declaration of Steve Comstock in Support of Plaintiffs’ Reply to Opposition to Motion for Summary Judgment, DKT. 155-5	JA2955
Declaration of Christian Dubay in Support of Plaintiffs’ Reply to Opposition to Motion for Summary Judgment, DKT. 155-6	JA2960
Exhibit A to Declaration of Christian Dubay in Support of Plaintiffs’ Reply to Opposition to Motion for Summary Judgment, DKT. 155-6, exhibit A (Material Under Seal)	JA2965
Supplemental Declaration of Thomas B. O’Brien, Jr. in Support of Plaintiffs’ Reply to Opposition to Motion for Summary Judgment, DKT. 155-7	JA3849
Exhibit 10 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 163-6 (Material Under Seal).....	JA3925
Exhibit 11 to Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 163-7 (Material Under Seal).....	JA3928
Declaration of Matthew Becker in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 164-1	JA3930
Public.Resource.Org’s Supplemental Statement of Undisputed Material Facts in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 164-3	JA3934
Supplemental Declaration of Carl Malamud in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 164-8	JA3941
Exhibit 5 to Supplemental Declaration of Carl Malamud in Support of Public.Resource.Org’s Motion for Summary Judgment, DKT. 164-13	JA3943

Exhibit 6 to Supplemental Declaration of Carl Malamud in Support
of Public.Resource.Org’s Motion for Summary Judgment,
DKT. 164-14 JA3988

Memorandum Opinion, DKT. 175..... JA4003

Exhibit 156 to Declaration of Jane W. Wise in Support of Plaintiffs’
Second Motion for Summary Judgment, DKT. 198-40 JA4822

VOLUME 8 (JA4848-JA7295)

Exhibit 156 to Declaration of Jane W. Wise in Support of Plaintiffs’
Second Motion for Summary Judgment, DKT. 198-40 (continued)..... JA4848

Exhibit 167 to Declaration of Jane W. Wise in Support of Plaintiffs’
Second Motion for Summary Judgment, DKT. 198-48 JA4927

Exhibit 173 to Declaration of Jane W. Wise in Support of Plaintiffs’
Second Motion for Summary Judgment, DKT. 198-48 JA4934

Declaration of James S. Thomas and Exhibits in Support of Plaintiffs’
Second Motion for Summary Judgment, DKT. 198-49 JA4940

Supplemental Declaration of James T. Pauley in Support of Plaintiffs’
Second Motion for Summary Judgment, DKT. 198-50 JA4985

Plaintiffs’ Memorandum in Support of Second Motion for Summary
Judgment and for Permanent Injunction, DKT. 199-1
(Material Under Seal) (Public Version at DKT. 200)..... JA5001

Plaintiffs’ Second Supplemental Statement of Material Facts in
Support of Second Motion for Summary Judgment, DKT. 199-2
(Material Under Seal) (Public Version at DKT. 201)..... JA5059

Exhibit D to the Supplemental Declaration of James T. Pauley
in Support of Second Motion for Summary Judgment,
DKT. 199-15 (Material Under Seal) JA5121

Exhibit F to the Supplemental Declaration of James T. Pauley in Support of Second Motion for Summary Judgment, DKT. 199-17 (Material Under Seal)	JA5223
Exhibit P to the Supplemental Declaration of James T. Pauley in Support of Second Motion for Summary Judgment, DKT. 199-27 (Material Under Seal)	JA5571
Exhibit T to the Supplemental Declaration of James T. Pauley in Support of Second Motion for Summary Judgment, DKT. 199-31 (Material Under Seal)	JA6501
Exhibit V to the Supplemental Declaration of James T. Pauley in Support of Second Motion for Summary Judgment, DKT. 199-33 (Material Under Seal)	JA6916
Supplemental Declaration of Stephanie Reiniche in Support of Second Motion for Summary Judgment, DKT. 198-53	JA6944
Exhibit 1 to Supplemental Declaration of Stephanie Reiniche in Support of Second Motion for Summary Judgment, DKT. 199-34, exhibit 1 (Material Under Seal)	JA6948
Public Resource’s Second Motion for Summary Judgment, DKT. 202.....	JA7139
Public Resource’s Second Supplemental Statement of Material Facts in Opposition To Plaintiffs’ Motion for Summary Judgment and Permanent Injunction, and in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 203-2 (Material Under Seal)	JA7142
Exhibit 77 to Public Resource’s Second Motion for Summary Judgment, DKT. 203-27 (Material Under Seal)	JA7197
Declaration of Carl Malamud in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 204-4	JA7199
Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 204-5	JA7216

Exhibit 34 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-40 JA7226

Exhibit 36 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-42 JA7228

VOLUME 9 (JA7296-JA7675)

Exhibit 36 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-42 (continued) JA7296

Exhibit 37 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-43 JA7317

Exhibit 38 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-44 JA7439

Exhibit 40 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-46 JA7541

Exhibit 41 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-47 JA7655

VOLUME 10 (JA7676-JA8154)

Exhibit 41 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-47 (continued) JA7676

Exhibit 42 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-48 (Material Under Seal) JA7761

Exhibit 43 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-49 JA7861

Exhibit 44 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-50 JA7959

Exhibit 45 to Public Resource’s Second Motion for Summary
Judgment, DKT. 204-51 JA8045

VOLUME 11 (JA8155-JA8817)

Exhibit 45 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-51 (continued)	JA8155
Exhibit 46 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-52 (Material Under Seal)	JA8165
Exhibit 55 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-61 (Material Under Seal)	JA8269
Exhibit 56 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-62 (Material Under Seal)	JA8297
Exhibit 60 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-66	JA8324
Exhibit 72 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-78 (Material Under Seal)	JA8327
Exhibit 73 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-79 (Material Under Seal)	JA8352
Exhibit 74 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-80 (Material Under Seal)	JA8378
Exhibit 75 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-81 (Material Under Seal)	JA8405
Exhibit 76 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-82 (Material Under Seal)	JA8435
Exhibit 77 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-83 (Material Under Seal)	JA8438
Exhibit 78 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-84 (Material Under Seal)	JA8440
Exhibit 79 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-85 (Material Under Seal)	JA8446

Exhibit 80 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-86 (Material Under Seal)	JA8448
Exhibit 84 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-90	JA8450
Exhibit 85 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-91	JA8456
Exhibit 86 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-92	JA8471
Exhibit 87 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-93	JA8489
Exhibit 88 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-94	JA8491
Exhibit 89 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-95	JA8534
Exhibit 90 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-96	JA8538
Exhibit 91 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-97	JA8654
Exhibit 96 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-102	JA8667
Exhibit 97 to Public Resource’s Second Motion for Summary Judgment, DKT. 204-103 (Material Under Seal)	JA8729
Plaintiffs’ Statement of Disputed Facts and Objections in Opposition to Public Resource’s Second Supplemental Statement of Material Facts, DKT. 212-1 (Material Under Seal) (Public Version at DKT. 213-20).....	JA8733

VOLUME 12 (JA8818-JA9197)

Plaintiffs’ Statement of Disputed Facts and Objections in Opposition to Public Resource’s Second Supplemental Statement of Material Facts, DKT. 212-1 (Material Under Seal) (Public Version at DKT. 213-20) (continued)	JA8818
Plaintiffs’ Third Supplemental Statement of Material Facts in Support of Second Motion for Summary Judgment, DKT. 213-1	JA8858
Exhibit 176 to Declaration of Jane W. Wise in Support of Second Motion for Summary Judgment, DKT. 213-6	JA8864
Supplemental Reply Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 215-3.....	JA9005
Exhibit 98 to Supplemental Reply Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 215-4	JA9010

VOLUME 13 (JA9198-JA9505)

Exhibit 98 to Supplemental Reply Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 215-4 (continued).....	JA9198
Exhibit 99 to Supplemental Reply Declaration of Matthew Becker in Support of Public Resource’s Second Motion for Summary Judgment, DKT. 215-5	JA9249
Memorandum and Opinion re Plaintiffs’ Motion for Summary Judgment and Permanent Injunction, and Defendant’s Cross-Motion for Summary Judgment, DKT. 239.....	JA9265
Appendix to Memorandum and Opinion re Plaintiffs’ Motion for Summary Judgment and Permanent Injunction, and Defendant’s Cross-Motion for Summary Judgment, DKT. 239-1	JA9312
Order granting in part and denying in part Plaintiffs’ Motion for Summary Judgment; granting in part and denying in part Plaintiffs’	

Motion for Permanent Injunction; granting in part and denying in
part Defendant’s Cross-Motion for Summary Judgment, DKT. 240 JA9499

Notice of Appeal JA9502

U.S. District Court
District of Columbia (Washington, DC)
CIVIL DOCKET FOR CASE #: 1:13-cv-01215-TSC

AMERICAN SOCIETY FOR TESTING AND MATERIALS et al v. PUBLIC.RESOURCE.ORG, INC.

Assigned to: Judge Tanya S. Chutkan

Case: 1:14-cv-00857-TSC

Case in other court: 17-07035

USCA, 22-07063

Cause: 17:501 Copyright Infringement

Date Filed: 08/06/2013

Date Terminated: 08/07/2022

Jury Demand: Defendant

Nature of Suit: 820 Copyright

Jurisdiction: Federal Question

Date Filed	#	Docket Text
08/06/2013	<u>1</u>	COMPLAINT against PUBLIC.RESOURCE.ORG, INC. (Filing fee \$ 400 receipt number 0090-3425373) filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Attachments: # <u>1</u> Exhibit Exhibit A, # <u>2</u> Exhibit Exhibit B, # <u>3</u> Exhibit Exhibit C, # <u>4</u> Exhibit Exhibit D, # <u>5</u> Exhibit Exhibit E, # <u>6</u> Exhibit Exhibit F, # <u>7</u> Exhibit Exhibit G, # <u>8</u> Exhibit Exhibit H, # <u>9</u> Exhibit Exhibit I, # <u>10</u> A0121 Form, # <u>11</u> Civil Cover Sheet Civil Cover Sheet, # <u>12</u> Summons Summons)(Clayton, Michael) (Entered: 08/06/2013)
08/06/2013	<u>2</u>	Corporate Disclosure Statement by AMERICAN SOCIETY FOR TESTING AND MATERIALS. (Clayton, Michael) (Entered: 08/06/2013)
08/06/2013	<u>3</u>	LCvR 7.1 CERTIFICATE OF DISCLOSURE of Corporate Affiliations and Financial Interests by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Choudhury, Anjan) (Entered: 08/06/2013)
08/06/2013	<u>4</u>	NOTICE of Appearance by Jeffrey S. Bucholtz on behalf of AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC. (Bucholtz, Jeffrey) (Entered: 08/06/2013)
08/06/2013	<u>5</u>	Corporate Disclosure Statement by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC.. (Bucholtz, Jeffrey) (Entered: 08/06/2013)
08/06/2013	<u>6</u>	NOTICE of Appearance by Anjan Choudhury on behalf of NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Choudhury, Anjan) (Entered: 08/06/2013)
08/06/2013		Case Assigned to Judge Emmet G. Sullivan. (sth,) (Entered: 08/07/2013)
08/07/2013		SUMMONS Not Issued as to PUBLIC.RESOURCE.ORG, INC. (sth,) (Entered: 08/07/2013)
08/07/2013	<u>7</u>	REQUEST FOR SUMMONS TO ISSUE by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC..(Clayton, Michael) (Entered: 08/07/2013)
08/07/2013	<u>8</u>	Electronic Summons (1) Issued as to PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Summons)(sth,) (Entered: 08/07/2013)
08/08/2013	<u>9</u>	RETURN OF SERVICE/AFFIDAVIT of Summons and Complaint Executed. PUBLIC.RESOURCE.ORG, INC. served on 8/7/2013, answer due 8/28/2013 (Clayton, Michael) (Entered: 08/08/2013)
08/12/2013	<u>10</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name- Joseph R. Wetzel, :Firm- King & Spalding LLP, :Address- 101 Second Street, Suite 2300, San

JA00001

		Francisco, CA 94105. Phone No. – (415) 318–1200. Fax No. – (415) 318–1300 by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC. (Attachments: # <u>1</u> Declaration, # <u>2</u> Text of Proposed Order)(Bucholtz, Jeffrey) (Entered: 08/12/2013)
08/12/2013	<u>11</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Kenneth L. Steintal, :Firm– King & Spalding LLP, :Address– 101 Second Street, Suite 2300, San Francisco, CA 94105. Phone No. – (415) 318–1200. Fax No. – (415) 318–1300 by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC. (Attachments: # <u>1</u> Declaration, # <u>2</u> Text of Proposed Order)(Bucholtz, Jeffrey) (Entered: 08/12/2013)
08/13/2013		MINUTE ORDER granting <u>10</u> and <u>11</u> Motions for Admission Pro Hac Vice. Joseph R. Wetzel and Kenneth L. Steintal are hereby admitted pro hac vice in this matter. Signed by Judge Emmet G. Sullivan on August 13, 2013. (lcegs4) (Entered: 08/13/2013)
08/20/2013	<u>12</u>	NOTICE of Appearance by Mitchell L. Stoltz on behalf of PUBLIC.RESOURCE.ORG, INC. (Stoltz, Mitchell) (Main Document 12 replaced on 8/21/2013) (jf,). (Entered: 08/20/2013)
08/20/2013	<u>13</u>	STIPULATION and [Proposed] Order on Defendant's Time to Respond to Complaint by PUBLIC.RESOURCE.ORG, INC.. (Stoltz, Mitchell) (Entered: 08/20/2013)
08/21/2013	<u>14</u>	NOTICE of Appearance by David Elliot Halperin on behalf of PUBLIC.RESOURCE.ORG, INC. (Halperin, David) (Main Document 14 replaced on 8/22/2013) (jf,). (Entered: 08/21/2013)
08/21/2013		MINUTE ORDER. The Court will construe <u>13</u> Stipulation and Proposed Order on Defendant's Time to Respond to Complaint as a motion for extension of time to respond to the complaint and will GRANT the motion. Defendant shall respond to the complaint by no later than September 27, 2013. Signed by Judge Emmet G. Sullivan on August 21, 2013. (lcegs2) (Entered: 08/21/2013)
08/21/2013		Set/Reset Deadlines: Defendant shall respond to the complaint due by 9/27/2013 (tcb) (Entered: 08/21/2013)
08/28/2013	<u>15</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Michael J. Mongan, :Firm– Munger, Tolles & Olson LLP, :Address– 560 Mission Street, 27th Floor, San Francisco, CA 94105. Phone No. – (415) 512– 4051. Fax No. – (415) 512–4077 by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Declaration of Michael J. Mongan, # <u>2</u> Text of Proposed Order)(Choudhury, Anjan) (Entered: 08/28/2013)
08/28/2013	<u>16</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Jonathan H. Blavin, :Firm– Munger, Tolles & Olson LLP, :Address– 560 Mission Street, 27th Floor, San Francisco, CA 94105. Phone No. – 415–512–4011. Fax No. – 415–512–4077 by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Declaration of Jonathan H. Blavin, # <u>2</u> Text of Proposed Order)(Choudhury, Anjan) (Entered: 08/28/2013)
08/28/2013	<u>17</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Kelly M. Klaus, :Firm– Munger, Tolles & Olson LLP, :Address– 560 Mission Street, 27th Floor, San Francisco, CA 94105. Phone No. – 415–512–4017. Fax No. – 415–512–4077 by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Declaration of Kelly M. Klaus, # <u>2</u> Text of Proposed Order)(Choudhury, Anjan) (Entered: 08/28/2013)
08/29/2013		MINUTE ORDER granting <u>15</u> motion to appear pro hac vice. Michael J. Mongan is hereby admitted pro hac vice in this action. Signed by Judge Emmet G. Sullivan on August 29, 2013. (lcegs1) (Entered: 08/29/2013)
08/29/2013		MINUTE ORDER granting <u>16</u> motion to appear pro hac vice. Jonathan H. Blavin is hereby admitted pro hac vice in this action. Signed by Judge Emmet G. Sullivan on August 29, 2013. (lcegs1) (Entered: 08/29/2013)
08/29/2013		MINUTE ORDER granting <u>17</u> motion to appear pro hac vice. Kelly M. Klaus is hereby admitted pro hac vice in this action. Signed by Judge Emmet G. Sullivan on

		August 29, 2013. (lcegs1) (Entered: 08/29/2013)
09/16/2013	<u>18</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Corynne McSherry, :Firm– Electronic Frontier Foundation, :Address– 815 Eddy Street, San Francisco, CA 94109. Phone No. – 415–436–9333. Fax No. – 415–436–9993 by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Declaration of Corynne McSherry, # <u>2</u> Text of Proposed Order)(Stoltz, Mitchell) (Entered: 09/16/2013)
09/23/2013		MINUTE ORDER granting <u>18</u> Corynne McSherry's motion for leave to appear pro hac vice in this matter. Signed by Judge Emmet G. Sullivan on September 23, 2013. (lcegs4) (Entered: 09/23/2013)
09/24/2013	<u>19</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Kathleen Lu, :Firm– Fenwick & West LLP, :Address– 555 California St., 12th Floor, San Francisco, CA 94104. Phone No. – 415.875.2300. Fax No. – 415.281.1350 by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Affidavit of Kathleen Lu, # <u>2</u> Text of Proposed Order)(Stoltz, Mitchell) (Entered: 09/24/2013)
09/24/2013	<u>20</u>	NOTICE of Appearance by Andrew Phillip Bridges on behalf of PUBLIC.RESOURCE.ORG, INC. (Bridges, Andrew) (Entered: 09/24/2013)
09/27/2013	<u>21</u>	<i>Public.Resource.Org, Inc.'s</i> ANSWER to Complaint with Jury Demand for <i>Injunctive Relief</i> , COUNTERCLAIM for <i>Declaratory Relief</i> against All Plaintiffs by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Exhibit A, # <u>2</u> Exhibit B, # <u>3</u> Exhibit C, # <u>4</u> Exhibit D, # <u>5</u> Exhibit E)(Bridges, Andrew) (Entered: 09/27/2013)
09/27/2013	<u>22</u>	Corporate Disclosure Statement by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 09/27/2013)
09/30/2013		MINUTE ORDER granting <u>19</u> motion to admit Kathleen Lu pro hac vice in this matter. Signed by Judge Emmet G. Sullivan on September 30, 2013. (lcegs4) (Entered: 09/30/2013)
10/15/2013	<u>23</u>	STIPULATION re <u>21</u> Answer to Complaint, COUNTERCLAIM,, and <i>[Proposed] Order</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS. (Fee, J.) (Entered: 10/15/2013)
10/16/2013	<u>24</u>	NOTICE of Appearance by J. Kevin Fee on behalf of AMERICAN SOCIETY FOR TESTING AND MATERIALS (Fee, J.) (Entered: 10/16/2013)
10/17/2013		MINUTE ORDER. The Court has received <u>23</u> the parties' Stipulation, which requests that the Court extend the deadline for plaintiffs to respond to defendant's counterclaim and set a briefing schedule for any oppositions and replies to any motions that may be filed in response to defendant's counterclaim. It is hereby ORDERED that plaintiffs' responses to defendant's counterclaim shall be filed by no later than November 20, 2013. If any plaintiff files a motion in response to defendant's counterclaim, defendant's opposition to that motion shall be filed by no later than December 18, 2013, and plaintiffs shall file any reply in further support of the motion by no later than January 15, 2014. Signed by Judge Emmet G. Sullivan on October 17, 2013. (lcegs2) (Entered: 10/17/2013)
10/18/2013		Set/Reset Deadlines: Plaintiff's Response to Defendant's Counterclaim due by 11/20/2013. Defendant's Opposition to Plaintiff's Motion due by 12/18/2013. Plaintiff's Reply in Support of Motion due by 1/15/2014. (mac) (Entered: 10/18/2013)
11/20/2013	<u>25</u>	ANSWER to <u>21</u> Answer to Complaint, COUNTERCLAIM,, by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. Related document: <u>21</u> Answer to Complaint, COUNTERCLAIM,, filed by PUBLIC.RESOURCE.ORG, INC..(Clayton, Michael) (Entered: 11/20/2013)
11/20/2013	<u>26</u>	<i>Counter Defendant The American Society of Heating, Refrigerating, and Air–Conditioning Engineers, Inc.'s</i> ANSWER to <u>21</u> Answer to Complaint, COUNTERCLAIM,, of <i>Public.Resource.Org, Inc. for Declaratory Judgment</i> by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC.. Related document: <u>21</u> Answer to Complaint, COUNTERCLAIM,, filed by PUBLIC.RESOURCE.ORG,

		INC..(Steinthal, Kenneth) (Entered: 11/20/2013)
11/20/2013	<u>27</u>	ANSWER to <u>21</u> Answer to Complaint, COUNTERCLAIM,, by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. Related document: <u>21</u> Answer to Complaint, COUNTERCLAIM,, filed by PUBLIC.RESOURCE.ORG, INC..(Choudhury, Anjan) (Entered: 11/20/2013)
11/22/2013	<u>28</u>	ORDER FOR MEET AND CONFER REPORT. Attorney Meet and Confer Conference due by 12/16/2013. Meet & Confer Statement due by 12/30/2013. Signed by Judge Emmet G. Sullivan on 11/22/2013. (mac) (Entered: 11/22/2013)
12/30/2013	<u>29</u>	MEET AND CONFER STATEMENT. (Fee, J.) (Entered: 12/30/2013)
12/31/2013	<u>30</u>	SCHEDULING ORDER. The parties are directed to read this Order in its entirety upon receipt. The Court will hold a status hearing in this case on April 30, 2015 at 11:00 a.m. in Courtroom 24A. Signed by Judge Emmet G. Sullivan on December 31, 2013. (lcegs2) (Entered: 12/31/2013)
01/06/2014		Set/Reset Deadlines/Hearings: Initial Disclosure due by 1/17/2014. Amended Pleadings due by 3/14/2014. Fact Discovery due by 10/3/2014. Expert Disclosures (Rule 26a2) due by 12/2/2014. Opening Expert Disclosures (Rule 26a2) due by 1/16/2015. Replies to Rebuttal Disclosures due by 3/2/2015. Reply Expert Disclosures due by 3/16/2015. Expert Discovery due by 4/16/2015. Status Report due by 11/3/2014. Status Conference set for 4/30/2015 11:00 AM in Courtroom 24A before Judge Emmet G. Sullivan. Joint Recommendation due by 4/23/2015. (mac) (Entered: 01/06/2014)
06/11/2014		Case reassigned to Judge Tanya S. Chutkan. Judge Emmet G. Sullivan no longer assigned to the case. (ztnr,) (Entered: 06/11/2014)
07/07/2014	<u>31</u>	MOTION for Order of <i>Protection</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Exhibit A – Proposed Order, # <u>2</u> Exhibit B – Declaration of Jordana Rubel, # <u>3</u> Exhibit B – Declaration Exh. 1, # <u>4</u> Exhibit B – Declaration Exh. 2, # <u>5</u> Exhibit B – Declaration Exh. 3, # <u>6</u> Exhibit B – Declaration Exh. 4, # <u>7</u> Exhibit B – Declaration Exh. 5, # <u>8</u> Exhibit B – Declaration Exh. 6, # <u>9</u> Exhibit B – Declaration Exh. 7, # <u>10</u> Exhibit B – Declaration Exh. 8, # <u>11</u> Exhibit B – Declaration Exh. 9, # <u>12</u> Exhibit B – Declaration Exh. 10, # <u>13</u> Exhibit B – Declaration Exh. 11, # <u>14</u> Exhibit B – Declaration Exh. 12, # <u>15</u> Exhibit B – Declaration Exh. 13, # <u>16</u> Exhibit B – Declaration Exh. 14, # <u>17</u> Exhibit B – Declaration Exh. 15, # <u>18</u> Exhibit B – Declaration Exh. 16, # <u>19</u> Exhibit B – Declaration Exh. 17, # <u>20</u> Exhibit B – Declaration Exh. 18, # <u>21</u> Exhibit B – Declaration Exh. 19, # <u>22</u> Exhibit B – Declaration Exh. 20, # <u>23</u> Exhibit B – Declaration Exh. 21, # <u>24</u> Exhibit B – Declaration Exh. 22, # <u>25</u> Exhibit B – Declaration Exh. 23, # <u>26</u> Exhibit B – Declaration Exh. 24, # <u>27</u> Exhibit C)(Fee, J.) (Entered: 07/07/2014)
07/18/2014	<u>32</u>	NOTICE OF WITHDRAWAL OF APPEARANCE as to NATIONAL FIRE PROTECTION ASSOCIATION, INC.. Attorney Michael J. Mongan terminated. (Choudhury, Anjan) (Entered: 07/18/2014)
07/24/2014	<u>33</u>	RESPONSE re <u>31</u> MOTION for Order of <i>Protection</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Text of Proposed Order (Exhibit A), # <u>2</u> Declaration of Andrew P. Bridges (Exhibit B), # <u>3</u> Exhibit B–1, # <u>4</u> Exhibit B–2, # <u>5</u> Exhibit B–3, # <u>6</u> Declaration of Carl Malamud (Exhibit C))(Bridges, Andrew) (Entered: 07/24/2014)
08/08/2014	<u>34</u>	MOTION to Strike <u>21</u> Answer to Complaint, COUNTERCLAIM,, <i>Jury Demand Only and Request for Oral Argument</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Fee, J.). Added MOTION for Oral Argument on 8/11/2014 (td,). (Entered: 08/08/2014)
08/13/2014	<u>35</u>	Consent MOTION to File Reply Brief out of Time re <u>33</u> Response to motion, by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN

		SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Exhibit Plaintiffs' Reply in Support of Motion for Protective Order, # <u>2</u> Text of Proposed Order)(Fee, J.) (Entered: 08/13/2014)
08/14/2014		MINUTE ORDER: Granting Plaintiffs' <u>35</u> Consent Motion to File Reply Brief out of time. Plaintiffs shall refile the brief as a separate document. Signed by Judge Tanya S. Chutkan on 8/14/14. (djs) (Entered: 08/14/2014)
08/15/2014	<u>36</u>	REPLY to opposition to motion re <u>31</u> MOTION for Order of <i>Protection</i> filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Fee, J.) (Entered: 08/15/2014)
08/15/2014	<u>37</u>	Consent MOTION for Extension of Time to Complete Discovery and Case Schedule by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Text of Proposed Order Granting Defendant's Consent Motion to Extend Discovery and Case Schedule)(Bridges, Andrew) (Entered: 08/15/2014)
08/20/2014		MINUTE ORDER: A Hearing is hereby set for 9/16/14, 2014 at 1:30 p.m. in Courtroom 2 on Plaintiff's <u>31</u> Motion for a Protective Order and the parties' <u>37</u> Consent Motion for Extension of Time to Complete Discovery and Case Schedule. If the parties or their counsel are unable to attend in person, they may attend by phone. Any persons attending via telephone shall JOINTLY telephone chambers at 202-354-3390 shortly before the hearing begins. All persons on the joint telephone call must call from a landline, rather than a cell phone. Motion Hearing set for 9/16/2014 01:30 PM in Courtroom 2 before Judge Tanya S. Chutkan. Signed by Judge Tanya S. Chutkan on 8/20/14. (DJS) Motion Hearing set for 9/16/2014 01:30 PM in Courtroom 2 before Judge Tanya S. Chutkan. Pre-motion Conference set for 9/16/2014 01:30 PM in Courtroom 2 before Judge Tanya S. Chutkan.. Signed by Judge Tanya S. Chutkan on 8/20/14. (DJS,) (Entered: 08/20/2014)
08/25/2014	<u>38</u>	Memorandum in opposition to re <u>34</u> MOTION to Strike <u>21</u> Answer to Complaint, COUNTERCLAIM,, <i>Jury Demand Only and Request for Oral Argument</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Text of Proposed Order)(Stoltz, Mitchell) (Entered: 08/25/2014)
09/05/2014	<u>39</u>	REPLY to opposition to motion re <u>34</u> MOTION to Strike <u>21</u> Answer to Complaint, COUNTERCLAIM,, <i>Jury Demand Only and Request for Oral Argument</i> filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Clayton, Michael) (Entered: 09/05/2014)
09/10/2014	<u>40</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name- Nahtan M. Rehn, :Firm- Munger, Tolles & Olson LLP, :Address- 560 Mission Street, 27th Floor, San Francisco, CA 94105. Phone No. - (415) 512-4000. Fax No. - (415) 512-4077 Filing fee \$ 100, receipt number 0090-3835256. Fee Status: Fee Paid. by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Declaration of Nathan Rehn ISO, # <u>2</u> Text of Proposed Order)(Choudhury, Anjan) (Entered: 09/10/2014)
09/15/2014	<u>41</u>	MOTION to Compel <i>Discovery</i> by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Text of Proposed Order Granting Defendant's Motion to Compel Discovery (Exhibit A), # <u>2</u> Declaration of Kathleen Lu in Support of Defendant's Motion to Compel (Exhibit B), # <u>3</u> Exhibit 1 to Decl of Kathleen Lu, # <u>4</u> Exhibit 2 to Decl of Kathleen Lu, # <u>5</u> Exhibit 3 to Decl of Kathleen Lu, # <u>6</u> Exhibit 4 to Decl of Kathleen Lu, # <u>7</u> Exhibit 5 to Decl of Kathleen Lu, # <u>8</u> Exhibit 6 to Decl of Kathleen Lu, # <u>9</u> Exhibit 7 to Decl of Kathleen Lu, # <u>10</u> Exhibit 8 to Decl of Kathleen Lu, # <u>11</u> Exhibit 9 to Decl of Kathleen Lu, # <u>12</u> Exhibit 10 to Decl of Kathleen Lu, # <u>13</u> Exhibit 11 to Decl of Kathleen Lu, # <u>14</u> Exhibit 12 to Decl of Kathleen Lu, # <u>15</u> Exhibit 13 to Decl of Kathleen Lu, # <u>16</u> Exhibit 14 to Decl of Kathleen Lu, # <u>17</u> Exhibit 15 to Decl of Kathleen Lu)(Bridges, Andrew) (Entered: 09/15/2014)
09/16/2014		Minute Entry for proceedings held before Judge Tanya S. Chutkan: Motion Hearing held on 9/16/2014 re <u>31</u> MOTION for Order of <i>Protection</i> filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC., AMERICAN SOCIETY FOR TESTING

		AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC. Protective order conditions revised for reasons stated on the record. Revised protective order to be submitted to the court for approval. Case to be referred to a Magistrate Judge for discovery disputes. Order to follow. (Court Reporter:William Zaremba.) (tj) (Entered: 09/16/2014)
09/17/2014		MINUTE ORDER: Granting <u>37</u> Consent Motion to Extend Discovery and Case Schedule. Set/Reset Deadlines/Hearings: Fact Discovery due by 12/5/2014. Status Report due by 1/5/2015. Expert Disclosures due by 2/2/2015. Opposition Expert Disclosures due by 3/16/2015. Rebuttal Expert Disclosures due by 5/4/2015. Reply Expert Disclosures due by 5/18/2015. Expert Discovery due by 6/16/2015. Status Report and Joint Recommendation due by 6/23/2015. Status Conference set for 6/30/2015 at 10:30 AM in Courtroom 2 before Judge Tanya S. Chutkan. Signed by Judge Tanya S. Chutkan on 09/17/2014. (lctsc2) (Entered: 09/17/2014)
09/17/2014		MINUTE ORDER: Granting in part and denying in part <u>31</u> Plaintiffs' Motion for Order of Protection for the reasons stated on the record at the hearing held September 16, 2014. The parties shall file a revised protective order consistent with the Court's rulings by September 22, 2014. The parties are also instructed to e-mail Chambers the proposed protective order in Word format.. Signed by Judge Tanya S. Chutkan on 09/17/2014. (lctsc2) (Entered: 09/17/2014)
09/17/2014		MINUTE ORDER: Granting <u>40</u> Motion for Leave to Appear Pro Hac Vice. Attorney NATHAN M. REHN is hereby admitted pro hac vice to appear in this matter on behalf of plaintiff National Fire Protection Association, Inc. Signed by Judge Tanya S. Chutkan on 9/17/14. (DJS) (Entered: 09/17/2014)
09/17/2014	<u>42</u>	Consent MOTION for Leave to Appear Pro Hac Vice :Attorney Name- Michael Andrew Zee, :Firm- King & Spalding LLP, :Address- 101 Second Street, Suite 2300, San Francisco, CA 94105. Phone No. - (415) 318-1222. Fax No. - (415) 318-1300 Filing fee \$ 100, receipt number 0090-3842463. Fee Status: Fee Paid. by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC. (Attachments: # <u>1</u> Declaration, # <u>2</u> Text of Proposed Order)(Bucholtz, Jeffrey) (Entered: 09/17/2014)
09/18/2014		MINUTE ORDER: Granting <u>42</u> Motion for Leave to Appear Pro Hac Vice. Attorney Michael Andrew Zee is hereby admitted pro hac vice to appear in this matter on behalf of plaintiff American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. Signed by Judge Tanya S. Chutkan on 9/18/14. (DJS) (Entered: 09/18/2014)
09/22/2014	<u>43</u>	STIPULATION re Order on Motion for Order, <i>Proposed Protective Order</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Fee, J.) (Entered: 09/22/2014)
09/23/2014	<u>44</u>	STIPULATION AND ORDER: Entering the stipulated <u>43</u> Protective Order submitted by the parties. Signed by Judge Tanya S. Chutkan on 09/23/2014. (lctsc2) (Entered: 09/23/2014)
09/23/2014		ORDER OF REFERRAL: The Court has determined that this action should be referred to a magistrate judge for all issues <i>related to discovery</i> , including the Defendant's pending Motion to Compel (ECF No. 41). The parties are reminded, pursuant to LCvR 73.1, that this action may be referred for all purposes, including trial, upon the filing of an executed notice of consent by all parties. Consent of the District Court Judge is not necessary. Accordingly, it is hereby ORDERED that this action is referred to a magistrate judge for discovery only, beginning immediately; the magistrate judge will be randomly assigned by the Clerk's Office; and it is FURTHER ORDERED that any future filings related to discovery in this action shall have the initials of Judge Tanya Chutkan and the magistrate judge following the case number in the caption. Signed by Judge Tanya S. Chutkan on 09/23/2014. (lctsc2) (Entered: 09/23/2014)
09/23/2014	<u>45</u>	CASE Randomly REFERRED to Magistrate Judge Deborah A. Robinson for all discovery. (kb) (Entered: 09/25/2014)

09/26/2014		Set/Reset Hearings: Motion Hearing on <u>41</u> Defendant's Motion to Compel set for 10/13/2014 at 03:00 PM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. (lcdar2) (Entered: 09/26/2014)
09/29/2014		MINUTE ORDER: It is hereby ORDERED that the motion hearing is rescheduled for 3:00 PM on Tuesday 10/14/2014. The hearing was mistakenly scheduled on a holiday. Set/Reset Hearings: Motion Hearing set for 10/14/2014 at 03:00 PM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. Signed by Magistrate Judge Deborah A. Robinson on September 29, 2014. (SRH) (Entered: 09/29/2014)
10/02/2014	<u>46</u>	Memorandum in opposition to re <u>41</u> MOTION to Compel <i>Discovery Plaintiff National Fire Protection Association, Inc.'s Opposition to Motion to Compel Discovery</i> filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Attachments: # <u>1</u> Declaration of Christian Dubay In Support of, # <u>2</u> Declaration Dennis Berry In Support of)(Klaus, Kelly) (Entered: 10/02/2014)
10/02/2014	<u>47</u>	Memorandum in opposition to re <u>41</u> MOTION to Compel <i>Discovery</i> filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS. (Attachments: # <u>1</u> Exhibit Ex. A Declaration of Jordana Rubel in Support of Plaintiff's Opposition to Defendant's Motion to Compel Discovery, # <u>2</u> Exhibit Ex. B Declaration of Norma Jane Hair in Support of Plaintiff's Opposition to Defendant's Motion to Compel Discovery)(Fee, J.) (Entered: 10/02/2014)
10/02/2014	<u>48</u>	Memorandum in opposition to re <u>41</u> MOTION to Compel <i>Discovery</i> filed by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC.. (Attachments: # <u>1</u> Declaration of M. Andrew Zee, # <u>2</u> Exhibit 1, # <u>3</u> Exhibit 2, # <u>4</u> Declaration of Claire Ramspeck)(Steinthal, Kenneth) (Entered: 10/02/2014)
10/09/2014	<u>49</u>	Unopposed MOTION for Leave to Appear TELEPHONICALLY AT OCTOBER 14, 2014 HEARING by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC. (Attachments: # <u>1</u> Text of Proposed Order)(Steinthal, Kenneth) (Entered: 10/09/2014)
10/10/2014		MINUTE ORDER granting <u>49</u> Plaintiff-Counterdefendant American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc.'s Unopposed Motion for Leave to Appear by Telephone. Signed by Magistrate Judge Deborah A. Robinson on October 10, 2014. (SRH) (Entered: 10/10/2014)
10/10/2014	<u>50</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name- Matthew B. Becker, :Firm- Fenwick & West LLP, :Address- 801 California Street, Mountain View, California 94041. Phone No. - (650) 335-7930. Fax No. - (650) 938-5200 Filing fee \$ 100, receipt number 0090-3869285. Fee Status: Fee Paid. by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Declaration, # <u>2</u> Text of Proposed Order)(Stoltz, Mitchell) (Entered: 10/10/2014)
10/11/2014		MINUTE ORDER: Granting <u>50</u> Motion for Leave to Appear Pro Hac Vice. Attorney Matthew B. Becker is hereby admitted pro hac vice to appear in this matter on behalf of defendant Public.Resource.Org, Inc. Signed by Judge Tanya S. Chutkan on 10/11/14. (DJS) (Entered: 10/11/2014)
10/13/2014	<u>51</u>	REPLY to opposition to motion re <u>41</u> MOTION to Compel <i>Discovery</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Declaration of Andrew P. Bridges in Support of Defendant's Reply re Motion to Compel Discovery, # <u>2</u> Exhibit 1 to Declaration of Andrew Bridges, # <u>3</u> Errata 2 to Declaration of Andrew Bridges)(Bridges, Andrew) (Entered: 10/13/2014)
10/14/2014	<u>52</u>	NOTICE of Appearance by Jordana Sara Rubel on behalf of AMERICAN SOCIETY FOR TESTING AND MATERIALS, (ztnr,) (Entered: 10/14/2014)
10/14/2014		MINUTE ORDER: The hearing on Defendant Public.Resource.Org, Inc.'s Motion to Compel Discovery (Document No. 41), which was scheduled for 3:00 p.m. on this date, is, after consultation with counsel for the parties, continued to 3:00 p.m. on Wednesday, October 15, 2014. The court apologizes to counsel and the parties for the inconvenience this continuance has caused. Counsel are encouraged to use the intervening period to meet and confer in an effort to narrow the discovery disputes which are the subject of the motion. Set/Reset Hearings: Motion Hearing set for 10/15/2014 at 03:00 PM in Courtroom 4 before Magistrate Judge Deborah A.

		Robinson. Signed by Magistrate Judge Deborah A. Robinson on October 14, 2014. (SRH) (Entered: 10/14/2014)
10/15/2014		Minute Entry for proceedings held before Magistrate Judge Deborah A. Robinson: Motion Hearing held on 10/15/2014 re <u>41</u> MOTION to Compel <i>Discovery</i> filed by PUBLIC.RESOURCE.ORG, INC. The court heard preliminary arguments of counsel regarding the status of the Motion. The court directed counsel and the parties to continue to meet and confer in an effort to resolve disputes. The court scheduled a Further Motion Hearing set for 10/28/2014 03:00 PM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. (Court Reporter Bowles Reporting Services)(FTR Time Frame: 3:17:30 – 3:47:06, Crtrm 4). (zcmm,) (Entered: 10/15/2014)
10/24/2014	<u>53</u>	Unopposed MOTION for Leave to Appear <i>Telephonically at October 28, 2014 Hearing</i> by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Text of Proposed Order)(Steinthal, Kenneth) (Entered: 10/24/2014)
10/27/2014		MINUTE ORDER: It is hereby ORDERED that counsel for Plaintiffs-Counterdefendants American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. and the National Fire Protection Association, Inc.'s Unopposed Motion to Allow Telephonic Appearance at the October 28, 2014 (Document No. 53) is GRANTED. Signed by Magistrate Judge Deborah A. Robinson on October 27, 2014. (SRH) (Entered: 10/27/2014)
10/28/2014		Minute Entry for proceedings held before Magistrate Judge Deborah A. Robinson: Status Conference held on 10/28/2014. Case called for Motion Hearing but not held. By no later than 11/04/2014, counsel shall file a proposed order indicating with reference to <u>41</u> Motion to Compel the matters that have been resolved. Counsel shall include a provision that with respect to those issues the motion maybe denied as moot. Parties are directed to continue to confer. A Further Status Conference is set for 12/1/2014 11:00 AM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. (Court Reporter Bowles Reporting Services.)(FTR Time Frame: 3:30:53 – 3:58:59, Crtrm 4) (zcmm,) (Entered: 10/28/2014)
10/28/2014		Set/Reset Hearings: Status Conference is scheduled for Monday, December 1, 2014 at 11:00 AM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. (SRH) (Entered: 12/01/2014)
11/04/2014	<u>54</u>	STATUS REPORT <i>Joint Status Report and [Proposed] Order On Defendant's Motion to Compel Discovery</i> by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 11/04/2014)
11/17/2014	<u>55</u>	TRANSCRIPT OF PROCEEDINGS before Judge Tanya S. Chutkan held on September 16, 2014; Page Numbers: 1–24; Date of Issuance: November 17, 2014. Court Reporter/Transcriber: William Zaremba; Telephone number 202–354–3249; Court Reporter Email Address: William_Zaremba@dcd.uscourts.gov.<P></P>For the first 90 days after this filing date, the transcript may be viewed at the courthouse at a public terminal or purchased from the court reporter referenced above. After 90 days, the transcript may be accessed via PACER. Other transcript formats, (multi–page, condensed, PDF or ASCII) may be purchased from the court reporter.<P> NOTICE RE REDACTION OF TRANSCRIPTS: The parties have twenty–one days to file with the court and the court reporter any request to redact personal identifiers from this transcript. If no such requests are filed, the transcript will be made available to the public via PACER without redaction after 90 days. The policy, which includes the five personal identifiers specifically covered, is located on our website at www.dcd.uscourts.gov.<P></P>Redaction Request due 12/8/2014. Redacted Transcript Deadline set for 12/18/2014. Release of Transcript Restriction set for 2/15/2015.(Zaremba, William) (Entered: 11/17/2014)
11/21/2014		MINUTE ORDER: Setting Hearing on <u>34</u> MOTION to Strike Defendant's Jury Demand. Motion Hearing set for 12/4/2014 11:30 AM in Courtroom 2 before Judge Tanya S. Chutkan. Signed by Judge Tanya S. Chutkan on 11/21/2014. (lctsc2) (Entered: 11/21/2014)

11/24/2014	<u>56</u>	Consent MOTION for Extension of Time to <i>Extend Time for Discovery and Case Schedule</i> by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Text of Proposed Order)(McSherry, Corynne) (Entered: 11/24/2014)
11/24/2014	<u>57</u>	ORDER regarding <u>41</u> Defendant's Motion to Compel Discovery. See Order for details. Signed by Magistrate Judge Deborah A. Robinson on November 24, 2014. (SRH) (Entered: 11/24/2014)
11/25/2014	<u>58</u>	ORDER granting <u>56</u> Consent Motion for Extension of Deadlines. Fact discovery to close by 1/30/2015; Joint status report by 3/2/2015; Close of expert discovery by 7/14/2015; Joint status report by 7/21/2015; Status conference 7/28/2015 (See order for additional deadlines) Signed by Judge Tanya S. Chutkan on 11/25/14. (DJS,) (Entered: 11/25/2014)
11/25/2014		Set/Reset Deadlines/Hearings: Close of Fact Discovery due by 1/30/2015. Joint Status Report due by 3/2/2015. Plaintiff Rule 26(a)(2) due by 3/2/2015. Defendant Rule 26(a)(2) due by 4/13/2015. Rebuttal disclosures due by 6/1/2015. Reply Disclosures due by 6/15/2015. Close of Expert Discovery due by 7/14/2015. Joint Status Report due by 7/21/2015. Status Conference set for 7/28/2015 at 10:00 AM in Courtroom 2 before Judge Tanya S. Chutkan. (sm) (Entered: 11/25/2014)
12/01/2014		Minute Entry for proceedings held before Magistrate Judge Deborah A. Robinson: Status Conference held on 12/1/2014. Further Status Conference set for 1/15/2015 10:00 AM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. Status Report due by 1/12/2015. (Court Reporter Bowles Reporting Services)(FTR Time Frame: 11:13:50 – 1:03:35, Crtrm 4). (zcmm,) (Entered: 12/01/2014)
12/01/2014	<u>59</u>	TRANSCRIPT OF PROCEEDINGS before Magistrate Judge Deborah A. Robinson held on 10/28/2014; Page Numbers: 1–22. Court Reporter/Transcriber Bowles Reporting Service, Telephone number (860) 464–1083, Court Reporter Email Address : brs-ct@sbcglobal.net. For the first 90 days after this filing date, the transcript may be viewed at the courthouse at a public terminal or purchased from the court reporter referenced above. After 90 days, the transcript may be accessed via PACER. Other transcript formats, (multi–page, condensed, CD or ASCII) may be purchased from the court reporter. NOTICE RE REDACTION OF TRANSCRIPTS: The parties have twenty–one days to file with the court and the court reporter any request to redact personal identifiers from this transcript. If no such requests are filed, the transcript will be made available to the public via PACER without redaction after 90 days. The policy, which includes the five personal identifiers specifically covered, is located on our website at ww.dcd.uscourts.gov . Redaction Request due 12/22/2014. Redacted Transcript Deadline set for 1/1/2015. Release of Transcript Restriction set for 3/1/2015.(znmw,) (Entered: 12/01/2014)
12/01/2014	<u>60</u>	ORDER denying remaining issues with respect to Defendant's Motion to Compel Discovery (Document No. 41). See Order for details. Set/Reset Deadlines/Hearings: Counsel for the parties to the dispute shall file a status report by no later than 1/12/2015; Hearing with respect to the remaining discovery disputes is scheduled for 1/15/2015 at 10:00 AM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. Signed by Magistrate Judge Deborah A. Robinson on December 1, 2014. (SRH) Modified on 12/31/2014 (zcmm,). (Entered: 12/01/2014)
12/04/2014		Minute Entry for proceedings held before Judge Tanya S. Chutkan: Motion Hearing held on 12/4/2014 re <u>34</u> MOTION to Strike Defendant's Jury Demand filed by AMERICAN EDUCATIONAL RESEARCH ASSOCIATION, INC., AMERICAN PSYCHOLOGICAL ASSOCIATION, INC. and NATIONAL COUNCIL ON MEASUREMENT IN EDUCATION, INC. Oral argument heard, and motion taken under advisement.(Court Reporter: Janice Dickman.) (tj) (Entered: 12/04/2014)
12/18/2014	<u>61</u>	TRANSCRIPT OF PROCEEDINGS before Judge Tanya S. Chutkan held on 12–4–14; Page Numbers: 45. Date of Issuance: December 18, 2014. Court Reporter/Transcriber Jan Dickman, Telephone number (202)354–3267, Court Reporter Email Address : JaniceDickmanDCD@gmail.com.<P></P>For the first 90 days after this filing date, the transcript may be viewed at the courthouse at a public

		terminal or purchased from the court reporter referenced above. After 90 days, the transcript may be accessed via PACER. Other transcript formats, (multi–page, condensed, CD or ASCII) may be purchased from the court reporter.<P> NOTICE RE REDACTION OF TRANSCRIPTS: The parties have twenty–one days to file with the court and the court reporter any request to redact personal identifiers from this transcript. If no such requests are filed, the transcript will be made available to the public via PACER without redaction after 90 days. The policy, which includes the five personal identifiers specifically covered, is located on our website at www.dcd.uscourts.gov .<P></P> Redaction Request due 1/8/2015. Redacted Transcript Deadline set for 1/18/2015. Release of Transcript Restriction set for 3/18/2015.(Dickman, Janice) (Entered: 12/18/2014)
12/19/2014	<u>62</u>	NOTICE OF WITHDRAWAL OF APPEARANCE as to AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC.. Attorney Michael Andrew Zee terminated. (Zee, Michael) (Entered: 12/19/2014)
12/24/2014	<u>63</u>	ENTERED IN ERROR.....Consent MOTION for Extension of Time to <i>Oppose Plaintiffs' Motion to Compel</i> by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Text of Proposed Order)(Bridges, Andrew) Modified on 12/24/2014 (rdj). (Entered: 12/24/2014)
12/24/2014		NOTICE OF CORRECTED DOCKET ENTRY: re <u>63</u> Consent MOTION for Extension of Time to <i>Oppose Plaintiffs' Motion to Compel</i> was entered in error at the request of counsels. (rdj) (Entered: 12/24/2014)
12/24/2014	<u>64</u>	First MOTION to Compel <i>Public Resource.Org, Inc.</i> by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Rehn, Nathan) (Entered: 12/24/2014)
12/24/2014	<u>65</u>	Proposed Order re <u>64</u> <i>Plaintiffs' Motion to Compel</i> by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Rehn, Nathan) Modified on 12/28/2014 (jf,). (Entered: 12/24/2014)
12/24/2014	<u>66</u>	Declaration re <u>64</u> First MOTION to Compel <i>Public.Resource.Org.</i> /by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Rehn, Nathan) Modified on 12/28/2014 (jf,). (Entered: 12/24/2014)
01/12/2015	<u>67</u>	Memorandum in opposition to re <u>64</u> First MOTION to Compel <i>Public Resource.Org, Inc. Discovery</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Declaration of Kathleen Lu In Support of Defendant–Counterclaimant Public.Resource.Org, Inc.'s Opposition to Plaintiff–Counterdefendant American Society for Testing and Materials d/b/a ASTM International Motion to Compel Discovery, # <u>2</u> Declaration of John Doe In Support of Defendant–Counterclaimant Public.Resource.Org, Inc.'s Response to Plaintiffs' Motion to Compel Discovery, # <u>3</u> Declaration of Carl Malamud In Support of Defendant–Counterclaimant Public.Resource.Org, Inc.'s Response to Plaintiffs' Motion to Compel Discovery)(Bridges, Andrew) (Entered: 01/12/2015)
01/12/2015	<u>68</u>	STATUS REPORT <i>ON OUTSTANDING ISSUES RAISED IN PUBLIC RESOURCE'S MOTION TO COMPEL DISCOVERY (Related Dkt. # <u>60</u>)</i> by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 01/12/2015)
01/14/2015		MINUTE ORDER: At a hearing conducted by this court on December 1, 2014, this court, inter alia, directed the parties to the discovery disputes which were pending at that time to continue to meet and confer in an effort to finalize the resolution of those disputes; to file a status report by no later than January 12, 2015; and to appear for a status hearing on January 15, 2015. See Order (Document No. 60). This court, in an effort to prepare for the January 15 hearing has determined that (1) in the interim, Plaintiffs filed a Motion to Compel Discovery (Document No. 64), and that the motion is not yet ripe, and (2) the parties have not yet completed their efforts to resolve the discovery disputes which were pending as of December 1, 2014 (see Document No. 68). For these reasons, it is ORDERED that the hearing now scheduled for January 15 is continued to 10:00 a.m. on Wednesday, February 4, 2015. It is FURTHER ORDERED that counsel shall continue to meet and confer regarding the discovery disputes which are the subject of both the pending motion and the status report, and shall jointly file a status report by no later than January 20, 2015. Set/Reset Deadlines/Hearings: Counsel for the parties to the discovery disputes shall jointly file a status report by no later than January 20, 2015. A Status Conference is scheduled for

		10:00 a.m. on February 4, 2015 in Courtroom 4 before Magistrate Judge Deborah A. Robinson. Signed by Magistrate Judge Deborah A. Robinson on January 14, 2015. (SRH) (Entered: 01/14/2015)
01/20/2015	<u>69</u>	STATUS REPORT <i>Joint Status Report and [Proposed] Order On Defendant and Plaintiffs' Motions to Compel Discovery</i> by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Rehn, Nathan) (Entered: 01/20/2015)
01/22/2015	<u>70</u>	REPLY to opposition to motion re <u>64</u> First MOTION to Compel <i>Public Resource.Org, Inc.</i> filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Rehn, Nathan) (Entered: 01/22/2015)
01/29/2015	<u>71</u>	MOTION for Extension of Time to Complete Discovery <i>Defendant–Counterclaimant Public.Resource.Org, Inc.'s Motion for Extension of Discovery Period, Corresponding Modification of Scheduling Order, and Leave to Take More Than 10 Depositions</i> by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Declaration Declaration of Kathleen Lu in Support of Defendant–Counterclaimant Public.Resource.Org, Inc.'s Motion for Extension of Discovery Period, Corresponding Modification of Scheduling Order, and Leave to Take More Than 10 Depositions, # <u>2</u> Text of Proposed Order [Proposed] Order Granting Defendant's Motion for Extension of Discovery Period, Corresponding Modification of Scheduling Order, and Leave to Take More Than 10 Depositions)(Bridges, Andrew) (Entered: 01/29/2015)
02/02/2015	<u>72</u>	MEMORANDUM AND OPINION. Signed by Judge Tanya S. Chutkan on 2/2/2015. (lctsc2) (Entered: 02/02/2015)
02/02/2015	<u>73</u>	ORDER granting <u>34</u> Motion to Strike. The jury demand in Defendant's <u>21</u> counterclaim and Answer is stricken. Signed by Judge Tanya S. Chutkan on 2/2/2015. (lctsc2) (Entered: 02/02/2015)
02/03/2015	<u>74</u>	MOTION to Amend/Correct <u>1</u> Complaint,, <i>Exhibit B</i> by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Exhibit Amended Exhibit B to Complaint, # <u>2</u> Text of Proposed Order [Proposed] Order Granting Motion to Amend)(Rehn, Nathan) (Entered: 02/03/2015)
02/04/2015	<u>75</u>	NOTICE of Appearance by Simeon Meir Schopf on behalf of AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC. (Schopf, Simeon) (Entered: 02/04/2015)
02/04/2015		MINUTE ORDER. Proceedings held before Magistrate Judge Deborah A. Robinson: Further Status Conference held on 2/4/2015. With respect to <u>64</u> Plaintiffs' Motion to Compel Discovery, the defendant may redact identifying information from the documents (see page 3 in document number <u>69</u>); and, that such redactions are without prejudice to raising the issue at a time there is a more specific factual showing of need. In all other respects, the Motion is DENIED AS MOOT. Status Conference set for 3/25/2015 10:00 AM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. (Court Reporter Bowles Reporting Services)(FTR Time Frame: 10:09:09 – 10:42:39, Crtrm 4) (zcmm,) (Entered: 02/04/2015)
02/17/2015	<u>76</u>	Memorandum in opposition to re <u>71</u> MOTION for Extension of Time to Complete Discovery <i>Defendant–Counterclaimant Public.Resource.Org, Inc.'s Motion for Extension of Discovery Period, Corresponding Modification of Scheduling Order, and Leave to Take More Than 10 Depositions</i> filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Rehn, Nathan) (Entered: 02/17/2015)
02/20/2015	<u>77</u>	STIPULATION re <u>44</u> Stipulation and Order <i>JOINT STIPULATION TO AMEND PROTECTIVE ORDER</i> by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 02/20/2015)
02/20/2015	<u>78</u>	WITHDRAWAL OF MOTION PURSUANT TO <u>80</u> MOTION for Protective Order by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Declaration of Andrew P. Bridges In Support of Public.Resource.Org, Inc.'s Motion for Protective Order, # <u>2</u> Exhibit A – Plaintiffs' Second Requests for Production of Documents, Things and Electronically Stored Information, # <u>3</u> Text of Proposed Order Granting Defendant's Motion for Protective Order [Dkt. 78])(Bridges, Andrew) Modified on 3/2/2015 (td,). (Entered: 02/20/2015)

02/20/2015	<u>79</u>	Memorandum in opposition to re <u>74</u> MOTION to Amend/Correct <u>1</u> Complaint,, <i>Exhibit B</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Declaration of Andrew P. Bridges In Support of Public.Resource.Org, Inc.'s Opposition to National Fire Protection Association, Inc.'s Motion to Amend Complaint, # <u>2</u> Exhibit A to Bridges Declaration In Support of Opposition to Motion to Amend Complaint, # <u>3</u> Text of Proposed Order Denying National Fire Protection Association, Inc.'s Motion to Amend Complaint (Dkt. No. 74))(Bridges, Andrew) (Entered: 02/20/2015)
02/26/2015	<u>80</u>	WITHDRAWAL of Motion by PUBLIC.RESOURCE.ORG, INC. re <u>78</u> MOTION for Protective Order filed by PUBLIC.RESOURCE.ORG, INC. . (Bridges, Andrew) (Entered: 02/26/2015)
02/27/2015	<u>81</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Text of Proposed Order Granting Defendant's Motion to File Documents Under Seal, # <u>2</u> CONFIDENTIAL Version of Public.Resource.Org, Inc.s Reply In Support Of Motion For Extension Of Discovery Period, Corresponding Modification Of Scheduling Order, And Leave To Take More Than Ten Depositions, # <u>3</u> CONFIDENTIAL Version of Reply Declaration of Andrew P. Bridges In Support of Defendant–Counterclaimant Public.Resource.Org, Inc.s Reply In Support Of Motion For Extension Of Discovery Period, Corresponding Modification Of Scheduling Order, And Leave To Take More Than Ten Depositions, # <u>4</u> Confidential Exhibit D to the Bridges Reply Declaration In Support, # <u>5</u> Confidential Exhibit E to the Bridges Reply Declaration In Support, # <u>6</u> Confidential Exhibit F to the Bridges Reply Declaration In Support)(Bridges, Andrew) (Entered: 02/27/2015)
02/27/2015	<u>82</u>	REPLY to opposition to motion re <u>71</u> MOTION for Extension of Time to Complete Discovery <i>Defendant–Counterclaimant Public.Resource.Org, Inc.'s Motion for Extension of Discovery Period, Corresponding Modification of Scheduling Order, and Leave to Take More Than 10 Depositions [PUBLIC REDACTED VERSION]</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> PUBLIC REDACTED VERSION of Reply Declaration of Andrew P. Bridges In Support of Defendant–Counterclaimant Public.Resource.Org, Inc.s Reply In Support of Motion for Extension of Discovery Period, Corresponding Modification of Scheduling Order, and Leave to Take More Than 10 Depositions, # <u>2</u> Exhibit A to Bridges Reply Declaration In Support, # <u>3</u> Exhibit B to Bridges Reply Declaration In Support, # <u>4</u> Exhibit C to Bridges Reply Declaration In Support, # <u>5</u> Exhibit D to Bridges Reply Declaration In Support, # <u>6</u> Exhibit E to Bridges Reply Declaration In Support, # <u>7</u> Exhibit F to Bridges Reply Declaration In Support)(Bridges, Andrew) (Entered: 02/27/2015)
02/28/2015	<u>83</u>	CERTIFICATE OF SERVICE by PUBLIC.RESOURCE.ORG, INC. re <u>81</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) . (Bridges, Andrew) (Entered: 02/28/2015)
03/02/2015	<u>84</u>	REPLY to opposition to motion re <u>74</u> MOTION to Amend/Correct <u>1</u> Complaint,, <i>Exhibit B</i> filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Rehn, Nathan) (Entered: 03/02/2015)
03/02/2015	<u>85</u>	STATUS REPORT <i>Joint Status Report In Response to Scheduling Order (Dkt. 58)</i> by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 03/02/2015)
03/03/2015		DISREGARD THIS NOTICE. . . NOTICE OF ERROR re <u>85</u> Status Report; emailed to abridges@fenwick.com, cc'd 31 associated attorneys — The PDF file you docketed contained errors: 1. FYI: On future filings, the document must be signed by counsel who is electronically filing the doc. (td,) Modified on 3/3/2015 (td,). (Entered: 03/03/2015)
03/06/2015	<u>86</u>	Emergency MOTION for Order <i>and Request for Expedited Briefing Schedule</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS (Attachments: # <u>1</u> Exhibit Exhibit A, # <u>2</u> Exhibit Exhibit B, # <u>3</u> Exhibit Exhibit C, # <u>4</u> Exhibit Exhibit D, # <u>5</u> Exhibit Exhibit E, # <u>6</u> Exhibit Exhibit F, # <u>7</u> Exhibit Exhibit G)(Fee, J.) (Entered: 03/06/2015)

03/09/2015		Set/Reset Hearings: Status Conference, including consideration of <u>71</u> scheduled for 3/19/2015 at 02:00 PM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. All counsel shall meet and confer in advance of said hearing in an effort to reach a consensus regarding the expeditious completion of discovery. (lcdar2) (Entered: 03/09/2015)
03/09/2015		MINUTE ORDER: It is hereby ORDERED that <u>81</u> Sealed Motion for Leave to File Document Under Seal is hereby GRANTED. Signed by Magistrate Judge Deborah A. Robinson on March 9, 2015. (lcdar2) (Entered: 03/09/2015)
03/09/2015	<u>87</u>	SEALED REPLY TO OPPOSITION filed by PUBLIC.RESOURCE.ORG, INC. re <u>71</u> MOTION for Extension of Time to Complete Discovery <i>Defendant–Counterclaimant Public.Resource.Org, Inc.'s Motion for Extension of Discovery Period, Corresponding Modification of Scheduling Order, and Leave to Take More Than 10 Depositions</i> (Attachments: # <u>1</u> Exhibit D, # <u>2</u> Exhibit E, # <u>3</u> Exhibit F)(ztd,) (Entered: 03/10/2015)
03/17/2015	<u>88</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Jason Blake Cunningham, :Firm– King & Spalding LLP, :Address– 101 Second Street, Suite 2300, San Francisco, CA 94105. Phone No. – (415) 318–1200. Fax No. – (415) 318–1300 Filing fee \$ 100, receipt number 0090–4024895. Fee Status: Fee Paid. by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC. (Attachments: # <u>1</u> Declaration, # <u>2</u> Text of Proposed Order)(Bucholtz, Jeffrey) (Entered: 03/17/2015)
03/17/2015	<u>89</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Antonio E. Lewis, :Firm– King & Spalding LLP, :Address– 100 N Tryon Street, Suite 3900, Charlotte, NC 28202. Phone No. – (704) 503–2600. Fax No. – (704) 503–2622 Filing fee \$ 100, receipt number 0090–4024904. Fee Status: Fee Paid. by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC. (Attachments: # <u>1</u> Declaration, # <u>2</u> Text of Proposed Order)(Bucholtz, Jeffrey) (Entered: 03/17/2015)
03/18/2015		MINUTE ORDER: Granting <u>88</u> Motion for Leave to Appear Pro Hac Vice. Attorney Jason Blake Cunningham is hereby admitted pro hac vice to appear in this matter on behalf of defendant AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC.Signed by Judge Tanya S. Chutkan on 3/18/15. (DJS) Modified on 3/18/2015 (sm). (Entered: 03/18/2015)
03/19/2015		Minute Entry for proceedings held before Magistrate Judge Deborah A. Robinson: Status Conference held on 3/19/2015. (Court Reporter: Lisa Moreira) (zcmm,) (Entered: 03/20/2015)
03/23/2015		MINUTE ORDER: Proceedings held before Magistrate Judge Deborah A. Robinson: Status hearing and hearing with respect to Defendants Motion for Extension of Time to Complete Discovery, Document No. <u>71</u> , conducted on March 19, 2015. Defendants Motion for Extension of Time to Complete Discovery DENIED for the reasons set forth in the record, except that Defendant may complete Rule 30(b)(6) depositions in accordance with the agreement of the parties by no later than April 2, 2015. Parties waive oral argument with respect to Plaintiffs Emergency Motion for Protective Order Document No. 86, which will be decided by the Court after said motion has been fully briefed. (lcdar1) (Entered: 03/23/2015)
03/23/2015		MINUTE ORDER granting <u>89</u> Motion for Leave to Appear Pro Hac Vice. Signed by Magistrate Judge Deborah A. Robinson on 03/23/2015. (lcdar1,) (Entered: 03/23/2015)
03/23/2015	<u>90</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Text of Proposed Order Granting Defendant's Motion to File Documents Under Seal, # <u>2</u> Sealed Declaration of Andrew P. Bridges In Support of Public.Resource.Org, Inc.'s Opposition to Plaintiffs' Emergency Motion for Protective Order and Request for Expedited Briefing Schedule, # <u>3</u> Sealed Exhibit 11 to Bridges Declaration, # <u>4</u> Sealed Exhibit 12 to Bridges Declaration, # <u>5</u> Sealed Exhibit 13 to Bridges Declaration, # <u>6</u> Sealed Exhibit 14 to Bridges Declaration, # <u>7</u> Sealed Exhibit 15 to Bridges Declaration, # <u>8</u> Sealed Exhibit 16 to Bridges Declaration)(Bridges, Andrew) (Entered: 03/23/2015)

03/23/2015	<u>91</u>	Memorandum in opposition to re <u>86</u> Emergency MOTION for Order <i>and Request for Expedited Briefing Schedule</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> [Public] Declaration of Andrew P. Bridges In Support of Public.Resource.Org, Inc.'s Opposition to Plaintiffs' Emergency Motion for Protective Order and Request for Expedited Briefing Schedule, # <u>2</u> Exhibit 1 to Bridges Declaration, # <u>3</u> Exhibit 2 to Bridges Declaration, # <u>4</u> Exhibit 3 to Bridges Declaration, # <u>5</u> Exhibit 4 to Bridges Declaration, # <u>6</u> Exhibit 5 to Bridges Declaration, # <u>7</u> Exhibit 6 to Bridges Declaration, # <u>8</u> Exhibit 7 to Bridges Declaration, # <u>9</u> Exhibit 8 to Bridges Declaration, # <u>10</u> Exhibit 9 to Bridges Declaration, # <u>11</u> Exhibit 10 to Bridges Declaration, # <u>12</u> Exhibit 11 to Bridges Declaration, # <u>13</u> Exhibit 12 to Bridges Declaration, # <u>14</u> Exhibit 13 to Bridges Declaration, # <u>15</u> Exhibit 14 to Bridges Declaration, # <u>16</u> Exhibit 15 to Bridges Declaration, # <u>17</u> Exhibit 16 to Bridges Declaration, # <u>18</u> Text of Proposed Order Denying Plaintiffs' Emergency Motion for Protective Order and Request for Expedited Briefing Schedule)(Bridges, Andrew) (Entered: 03/23/2015)
03/24/2015	<u>92</u>	CERTIFICATE OF SERVICE by PUBLIC.RESOURCE.ORG, INC. re <u>90</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) . (Bridges, Andrew) (Entered: 03/24/2015)
03/24/2015		MINUTE ORDER: It is hereby ORDERED that Sealed Motion for Leave to File Document Under Seal, Document No. <u>90</u> , is hereby GRANTED. Signed by Magistrate Judge Deborah A. Robinson on 03/24/2015. (lcdar1,) (Entered: 03/24/2015)
03/24/2015	<u>93</u>	SEALED DOCUMENT filed by PUBLIC.RESOURCE.ORG, INC.. re <u>91</u> Memorandum in Opposition,,,, filed by PUBLIC.RESOURCE.ORG, INC.. (This document is SEALED and only available to authorized persons.)(ztd,) (Entered: 03/24/2015)
03/26/2015	<u>94</u>	TRANSCRIPT OF PROCEEDINGS before Magistrate Judge Deborah A. Robinson held on March 19, 2015; Page Numbers: 1–60. Date of Issuance:March 26, 2015. Court Reporter/Transcriber Lisa A. Moreira, RDR, CRR, Telephone number 202–354–3187, Court Reporter Email Address : Lisa_Moreira@dcd.uscourts.gov. For the first 90 days after this filing date, the transcript may be viewed at the courthouse at a public terminal or purchased from the court reporter referenced above. After 90 days, the transcript may be accessed via PACER. Other transcript formats, (multi–page, condensed, CD or ASCII) may be purchased from the court reporter. NOTICE RE REDACTION OF TRANSCRIPTS: The parties have twenty–one days to file with the court and the court reporter any request to redact personal identifiers from this transcript. If no such requests are filed, the transcript will be made available to the public via PACER without redaction after 90 days. The policy, which includes the five personal identifiers specifically covered, is located on our website at www.dcd.uscourts.gov. Redaction Request due 4/16/2015. Redacted Transcript Deadline set for 4/26/2015. Release of Transcript Restriction set for 6/24/2015.(Moreira, Lisa) (Entered: 03/26/2015)
04/01/2015	<u>95</u>	ORDER granting NFPA's <u>74</u> Motion to Amend the Complaint. See Order for details. Signed by Judge Tanya S. Chutkan on 4/1/2015. (lctsc2) (Entered: 04/01/2015)
04/01/2015	<u>96</u>	SUPPLEMENT (Exhibit B) to re <u>1</u> Complaint,, filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (td,) (Entered: 04/02/2015)
04/02/2015	<u>97</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Text of Proposed Order Granting Plaintiffs' Motion to File Documents Under Seal, # <u>2</u> Exhibit Sealed Exhibit 2 to Rubel Declaration, # <u>3</u> Exhibit Sealed Exhibit 6 to Rubel Declaration)(Fee, J.) (Entered: 04/02/2015)
04/02/2015	<u>98</u>	REPLY to Opposition re <u>86</u> MOTION for Protective Order filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS. (Attachments: # <u>1</u> Declaration of

		Jordana S. Rubel, # <u>2</u> Exhibit 1, # <u>3</u> Exhibit 2 [UNDER SEAL], # <u>4</u> Exhibit 3, # <u>5</u> Exhibit 4, # <u>6</u> Exhibit 5, # <u>7</u> Exhibit 6 [UNDER SEAL])(Fee, J.) Modified event title on 4/3/2015 (znmw,). (Entered: 04/02/2015)
04/21/2015		MINUTE ORDER: Sealed Motion for Leave to File Document Under Seal <u>97</u> is hereby GRANTED. Signed by Magistrate Judge Deborah A. Robinson on 4/21/2015.(lcdar1,) (Entered: 04/21/2015)
04/21/2015	<u>99</u>	SEALED DOCUMENT filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS. re Order on Sealed Motion for Leave to File Document Under Seal. (This document is SEALED and only available to authorized persons.)(ztd,) (Entered: 04/22/2015)
04/23/2015	<u>100</u>	STRICKEN PURSUANT TO MINUTE ORDER FILED ON 06/10/2015.....MOTION for Order to Set Expert Schedule by AMERICAN SOCIETY FOR TESTING AND MATERIALS (Attachments: # <u>1</u> Exhibit Proposed Order Granting Plaintiffs' Motion to Set Expert Schedule)(Fee, J.) Modified on 6/11/2015 (jf). (Entered: 04/23/2015)
05/11/2015	<u>101</u>	Memorandum in opposition to re <u>100</u> MOTION for Order to Set Expert Schedule filed by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 05/11/2015)
05/21/2015	<u>102</u>	REPLY to opposition to motion re <u>100</u> MOTION for Order to Set Expert Schedule filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Attachments: # <u>1</u> Exhibit Exhibit A)(Rehn, Nathan) (Entered: 05/21/2015)
06/10/2015		MINUTE ORDER: Plaintiffs' Motion to Set Expert Schedule (Document No. <u>100</u>) is pending for determination by this court. Entirely absent from the motion, and from the opposition to the motion and the reply to the opposition, is any indication that the parties discharged their duty to confer in an effort to agree upon a schedule, and if not, at least to narrow the areas of disagreement. See LCvR 7(m). This court has previously cautioned counsel that every disagreement regarding the conduct of discovery ought not spawn a new wave of litigation; this concern is particularly true where, as here, the disagreement concerns the schedule for completion of discovery. It is, therefore, ORDERED that the motion is STRICKEN FROM THE RECORD. It is FURTHER ORDERED that counsel for the parties shall meet and confer regarding the schedule for completion of discovery, and, by no later than June 24, 2015, file as attachments to a notice of filing their proposed orders. Signed by Magistrate Judge Deborah A. Robinson on 6/10/2015. (lcdar1,) (Entered: 06/10/2015)
06/16/2015		Set/Reset Deadlines : The parties' Notice of Filing with attached proposed orders regarding the schedule for completion of discovery to be filed by 6/24/15. (kk) (Entered: 06/16/2015)
06/22/2015	<u>103</u>	ORDER denying Plaintiffs' Motion for Protective Order and Request for Expedited Briefing Schedule (Document No. <u>86</u>). Signed by Magistrate Judge Deborah A. Robinson on 6/22/2015. (lcdar1,) (Entered: 06/22/2015)
06/24/2015	<u>104</u>	NOTICE of Proposed Order to Set Schedule for Expert Discovery by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Text of Proposed Order [Proposed] Order Setting Schedule for Expert Discovery, # <u>2</u> Exhibit Exhibit A to Notice of Filing, # <u>3</u> Exhibit Exhibit B to Notice of Filing)(Rehn, Nathan) (Entered: 06/24/2015)
06/24/2015	<u>105</u>	NOTICE of Proposed Order Regarding the Schedule for Completion of Discovery by PUBLIC.RESOURCE.ORG, INC. re Set/Reset Deadlines (Attachments: # <u>1</u> Text of Proposed Order Regarding the Schedule for Completion of Discovery)(Bridges, Andrew) (Entered: 06/24/2015)
06/25/2015		NOTICE OF ERROR re <u>104</u> Notice of Proposed Order; emailed to thane.rehn@mto.com, cc'd 35 associated attorneys -- The PDF file you docketed contained errors: 1. FYI: On future filings, if you are filing the document your name must be on the signature line(s). (td,) (Entered: 06/25/2015)
06/29/2015		Set/Reset Deadlines : Rule 30(b)(6) depositions to be completed by 7/7/15. (kk) (Entered: 06/29/2015)
07/01/2015	<u>106</u>	STIPULATION Joint Stipulation and Proposed Order Regarding Scheduling of Certain Depositions by PUBLIC.RESOURCE.ORG, INC.. (Becker, Matthew)

		(Entered: 07/01/2015)
07/09/2015		MINUTE ORDER: Upon consideration of the Joint Stipulation and Proposed Order Regarding Scheduling of Certain Depositions (Document No. <u>106</u>) it is hereby ORDERED that the deadline for the deposition of ASTM's 30(b)(6) corporate representative is extended to July 24, 2015. It is further ORDERED that the deposition of Public Resource's expert witness shall take place on or by July 31, 2015. It is further ORDERED that a status hearing is scheduled for 2:00 p.m. on Wednesday 8/12/15. Signed by Magistrate Judge Deborah A. Robinson on 7/9/2015. (lcdar1,) (Entered: 07/09/2015)
07/09/2015		Set/Reset Hearings: Status Conference is hereby set for 8/12/2015 at 02:00 PM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. (lcdar1,) (Entered: 07/09/2015)
07/09/2015		MINUTE ORDER: The status conference previously set for 7/28/15 before Judge CHUTKAN is hereby vacated. Signed by Judge Tanya S. Chutkan on 7/9/15. (DJS) (Entered: 07/09/2015)
07/21/2015	<u>107</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Katherine E. Merk, :Firm– King & Spalding LLP, :Address– 101 Second Street, Ste. 2300, San Francisco, CA 94105. Phone No. – 415–318–1200. Fax No. – 415–318–1300 Filing fee \$ 100, receipt number 0090–4182854. Fee Status: Fee Paid. by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC. (Attachments: # <u>1</u> Exhibit 1, # <u>2</u> Text of Proposed Order)(Bucholtz, Jeffrey) (Entered: 07/21/2015)
07/23/2015		MINUTE ORDER: Granting <u>107</u> Motion for Leave to Appear Pro Hac Vice. Attorney Katherine E. Merk is hereby admitted pro hac vice to appear in this matter on behalf of Plaintiff AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC.Signed by Judge Tanya S. Chutkan on 7/22/15. (DJS) (Entered: 07/23/2015)
07/29/2015		MINUTE ORDER: It is hereby ORDERED that not later than August 5, 2015 all counsel of record shall verify that the docket in this action contains the attorney's email address. In the absence of an email address, the attorney(s) shall obtain an ECF password or file a notice informing the court that that they do not wish to obtain a password. Should counsel decline to obtain an ECF password, they shall forfeit their right to: (1) file electronically in this action; and (2) receive copies of court orders via U.S. mail. Signed by Judge Tanya S. Chutkan on 7/29/15. (DJS) (Entered: 07/29/2015)
07/29/2015		Set/Reset Deadlines: Notice due by 8/5/2015. (zsm) (Entered: 07/29/2015)
08/05/2015	<u>108</u>	NOTICE <i>Verification of Email Addresses for Counsel of Record Pursuant to July 29, 2015 Minute Order</i> by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Rehn, Nathan) (Entered: 08/05/2015)
08/05/2015	<u>109</u>	NOTICE <i>Verification of Email Addresses for Counsel of Record Pursuant to July 29, 2015 Minute Order</i> by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC. (Cunningham, Jason) (Entered: 08/05/2015)
08/05/2015	<u>110</u>	NOTICE AND VERIFICATION OF MATTHEW BECKER REGARDING EMAIL ADDRESSES FOR COUNSEL OF RECORD PURSUANT TO COURT'S MINUTE ORDER OF JULY 29, 2015 by PUBLIC.RESOURCE.ORG, INC. re Set/Reset Deadlines, Order,, (Becker, Matthew) (Entered: 08/05/2015)
08/12/2015		Minute Entry for proceedings held before Magistrate Judge Deborah A. Robinson : Status Hearing conducted on 8/12/2015. Court Reporter FTR Gold – Ctrm. 4. FTR Time Frame: [2:20:37–3:15:13]. (mr) (Entered: 08/12/2015)
08/12/2015	<u>111</u>	ORDER on Status Hearing conducted on August 12, 2015. Signed by Magistrate Judge Deborah A. Robinson on 8/12/2015. (lcdar1,) Modified on 8/12/2015 (lcdar1,). (Entered: 08/12/2015)
08/12/2015		Set/Reset Deadlines: Fact discovery has closed. Expert discovery shall close on 10/16/2015. (lcdar1,) (Entered: 08/12/2015)

08/12/2015		Set/Reset Deadlines: Defendant/Counterclaimant motion in limine due by 8/19/2015. Defendant/Counterclaimant rebuttal expert report due by 9/11/2015. Plaintiff/Counterdefendants replies due by 10/2/2015. (mr) (Entered: 08/13/2015)
09/29/2015		Set/Reset Hearings: Post–Discovery Status Conference is hereby set for 10/20/2015 at 04:00 PM in Courtroom 4 before Magistrate Judge Deborah A. Robinson. (lcdar1,) (Entered: 09/29/2015)
10/14/2015	<u>112</u>	Consent MOTION for Order <i>Request for Telephonic Status Conference</i> by PUBLIC.RESOURCE.ORG, INC. (Becker, Matthew) (Entered: 10/14/2015)
10/15/2015		MINUTE ORDER: Consent motion for a telephonic status conference, Document No. <u>112</u> , is hereby GRANTED. Signed by Magistrate Judge Deborah A. Robinson on 10/15/2015. (lcdar1,) (Entered: 10/15/2015)
10/20/2015		Minute Entry for proceedings held before Magistrate Judge Deborah A. Robinson: Post–Discovery Status Conference conducted on 10/20/2015. All Counsel confirm that discovery – both fact and expert – has been completed. Court Reporter FTR Gold – Ctrm. 4. (FTR Time Frame: 4:02:59–4:10:33). Plaintiffs' Counsel: Jordana Rubel, Kevin Fee, Nathan Rehn, Kelly Klaus, and Blake Cunningham; Defendant's Counsel: Matthew Becker. (mr) (Entered: 10/20/2015)
10/27/2015	<u>113</u>	NOTICE of Request for Hearing by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Rubel, Jordana) (Entered: 10/27/2015)
10/27/2015		MINUTE ORDER. A status conference will be held in both this case and American Educational Research Association, Inc. v. Public.Resource.Org, Inc., Civil Action No. 1:14–cv–00857–TSC on Wednesday, November 4, 2015 at 10:15am. The court intends to set schedules for briefing summary judgment motions in both cases at the status conference. The parties to this case are hereby directed to jointly file their proposed schedules for summary judgment briefing, accompanied by proposed orders, by Friday, October 30, 2015. Signed by Judge Tanya S. Chutkan on 10/27/15. (lctsc2) (Entered: 10/27/2015)
10/28/2015		Set/Reset Deadlines/Hearings: Proposed Briefing Schedule due by 10/30/2015. Status Conference set for 11/4/2015 at 10:15 AM in Courtroom 2 before Judge Tanya S. Chutkan. (zsm) (Entered: 10/28/2015)
10/30/2015	<u>114</u>	PROPOSED BRIEFING SCHEDULE re Order,, and Joint Report of the Parties, submitted by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Exhibit A – Plaintiffs' Proposed Order, # <u>2</u> Exhibit B – Defendant's Proposed Order)(Becker, Matthew) (Entered: 10/30/2015)
11/04/2015		Minute Entry for proceedings held before Judge Tanya S. Chutkan: Status Conference held on 11/4/2015. Order to issue. Motion Hearing set for 3/22/2016 at 9:30 AM in Courtroom 2 before Judge Tanya S. Chutkan. (Court Reporter Bryan Wayne.) (zsm) (Entered: 11/04/2015)
11/04/2015		MINUTE ORDER setting briefing schedule: Plaintiffs' Motion for Summary Judgment due by November 19, 2015; Defendant's Opposition to Plaintiffs' Motion for Summary Judgment and COMBINED Cross–Motion for Summary Judgment due by December 21, 2015; Plaintiffs' Reply in Support of their Motion for Summary Judgment and COMBINED Opposition to Defendant's Cross–Motion for Summary Judgment due by January 21, 2016; Defendant's Reply in Support of its Cross–Motion for Summary Judgment due by February 4, 2016; Amicus briefs due by January 11, 2016. Signed by Judge Tanya S. Chutkan on 11/4/15. (lctsc2) (Entered: 11/04/2015)
11/04/2015		ENTERED IN ERROR.....MINUTE ORDER setting briefing schedule: Plaintiffs' Motion for Summary Judgment due by December 21, 2015; Defendant's Opposition to Plaintiffs' Motion for Summary Judgment and COMBINED Cross–Motion for Summary Judgment due by January 21, 2016; Plaintiffs' Reply in Support of their Motion for Summary Judgment and COMBINED Opposition to Defendant's Cross–Motion for Summary Judgment due by February 18, 2016; Defendant's Reply in Support of its Cross–Motion for Summary Judgment due by March 3, 2016; Amicus briefs due by February 11, 2016. Signed by Judge Tanya S. Chutkan on 11/4/15. (lctsc2) Modified on 11/4/2015 (zsm). (Entered: 11/04/2015)

11/04/2015		Set/Reset Deadlines: Summary Judgment motions due by 11/19/2015. Response to Motion for Summary Judgment due by 12/21/2015. Reply to Motion for Summary Judgment due by 1/21/2016.Replies due by 2/4/2016. Brief due by 1/11/2016. (zsm) (Entered: 11/04/2015)
11/05/2015	115	ENTERED IN ERROR.....MINUTE ORDER: Due to an unexpected scheduling conflict, the motion hearing previously set for 3/22/2016 is hereby VACATED. A new date will be set at a later time. Signed by Judge Tanya S. Chutkan on 11/5/15. (DJS) Modified on 11/5/2015 (zsm). (Entered: 11/05/2015)
11/05/2015		MINUTE ORDER: Due to an unexpected scheduling conflict, the motion hearing previously set for 3/22/2016 is hereby VACATED. A new date will be set at a later time. Signed by Judge Tanya S. Chutkan on 11/5/15. (DJS) (Entered: 11/05/2015)
11/14/2015	<u>116</u>	<p>TRANSCRIPT OF 11/04/15 STATUS HEARING before Judge Tanya S. Chutkan, held on November 4, 2015. Page Numbers: 1–21. Date of Issuance: 11/14/15. Court Reporter: Bryan A. Wayne; telephone number: 202–354–3186, Transcripts may be ordered by submitting the <u>Transcript Order Form</u>.</p> <p>For the first 90 days after this filing date, the transcript may be viewed at the courthouse at a public terminal or purchased from the court reporter referenced above. After 90 days, the transcript may be accessed via PACER. Other transcript formats, (multi–page, condensed, CD or ASCII) may be purchased from the court reporter.</p> <p>NOTICE RE REDACTION OF TRANSCRIPTS: The parties have twenty–one days to file with the court and the court reporter any request to redact personal identifiers from this transcript. If no such requests are filed, the transcript will be made available to the public via PACER without redaction after 90 days. The policy, which includes the five personal identifiers specifically covered, is located on our website at www.dcd.uscourts.gov.</p> <p>Redaction Request due 12/5/2015. Redacted Transcript Deadline set for 12/15/2015. Release of Transcript Restriction set for 2/12/2016.(Wayne, Bryan) (Entered: 11/14/2015)</p>
11/19/2015	<u>117</u>	MOTION for Leave to File <i>Documents Under Seal</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Text of Proposed Order, # <u>2</u> Exhibit Proposed Sealed Exhibit 1 to Rubel Declaration, # <u>3</u> Exhibit Proposed Sealed Exhibit 3 to Rubel Declaration)(Fee, J.) (Entered: 11/19/2015)
11/19/2015	<u>118</u>	MOTION for Summary Judgment <i>and Permanent Injunction</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Memorandum in Support, # <u>2</u> Statement of Facts, # <u>3</u> Declaration of Dennis Berry and Exhibits, # <u>4</u> Declaration of Steven Cramer and Exhibits, # <u>5</u> Declaration of James Golinveaux, # <u>6</u> Declaration of Randy Jennings and Exhibit, # <u>7</u> Declaration of Thomas O'Brien, Jr. and Exhibits, # <u>8</u> Declaration of James Pauley and Exhibits, # <u>9</u> Declaration of Kevin Reinertson, # <u>10</u> Declaration of Stephanie Reiniche and Exhibits, # <u>11</u> Declaration of James Thomas, # <u>12</u> Declaration of Jordana Rubel and Exhibits – Part 1, # <u>13</u> Declaration of Jordana Rubel and Exhibits – Part 2, # <u>14</u> Declaration of Jordana Rubel and Exhibits – Part 3, # <u>15</u> Declaration of Jordana Rubel and Exhibits – Part 4, # <u>16</u> Declaration of Jordana Rubel and Exhibits – Part 5, # <u>17</u> Text of Proposed Order and Injunction)(Fee, J.). Added MOTION for Permanent Injunction on 11/20/2015 (znmw). (Entered: 11/19/2015)
11/20/2015		MINUTE ORDER: Granting <u>117</u> Motion for Leave to File Documents Under Seal. Plaintiffs may file the following documents under seal: 1) Exhibit 1 to the Declaration of Jordana S. Rubel (which contains the Expert Report of John C. Jarosz); and (2) Exhibit 3 to the Declaration of Jordana S. Rubel, which includes excerpts from the February 27, 2015 deposition of Carl Malamud. Signed by Judge Tanya S. Chutkan on 11/20/15. (DJS) (Entered: 11/20/2015)

11/20/2015	<u>119</u>	SEALED DOCUMENT filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. re Order on Motion for Leave to File., (This document is SEALED and only available to authorized persons.)(ztd) (Entered: 11/23/2015)
12/21/2015	<u>120</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Text of Proposed Order, # <u>2</u> Exhibit [Proposed] Sealed Memorandum of Points and Authorities In Support of Defendants' Motion for Summary Judgment and Opposition, # <u>3</u> Exhibit [Proposed] Sealed Statement of Material Facts, # <u>4</u> Exhibit [Proposed] Sealed Declaration of Matthew Becker In Support, # <u>5</u> Exhibit [Proposed] Sealed Index of Consolidated Exhibits, # <u>6</u> Exhibit 4, # <u>7</u> Exhibit 11, # <u>8</u> Exhibit 21, # <u>9</u> Exhibit 22, # <u>10</u> Exhibit 53, # <u>11</u> Exhibit 74, # <u>12</u> Exhibit 75, # <u>13</u> Exhibit 76, # <u>14</u> Exhibit 80, # <u>15</u> Exhibit 82, # <u>16</u> Exhibit 83, # <u>17</u> Exhibit 84, # <u>18</u> Exhibit 85, # <u>19</u> Exhibit 86, # <u>20</u> Exhibit 87, # <u>21</u> Exhibit 88, # <u>22</u> Exhibit 89, # <u>23</u> Exhibit 90, # <u>24</u> Exhibit 91, # <u>25</u> Exhibit 92, # <u>26</u> Exhibit 93, # <u>27</u> Exhibit 94, # <u>28</u> Exhibit 114, # <u>29</u> Exhibit 129, # <u>30</u> Exhibit 140, # <u>31</u> Exhibit 141, # <u>32</u> Exhibit 142, # <u>33</u> Exhibit 146, # <u>34</u> Exhibit 150, # <u>35</u> Exhibit 153)(Bridges, Andrew) (Entered: 12/21/2015)
12/21/2015	<u>121</u>	MOTION for Summary Judgment by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Memorandum in Support, # <u>2</u> Statement of Facts, # <u>3</u> Statement of Disputed Facts, # <u>4</u> Objections, # <u>5</u> Declaration of Carl Malamud, # <u>6</u> Declaration of Matthew Becker, # <u>7</u> Request for Judicial Notice, # <u>8</u> Index of Consolidated Exhibits, # <u>9</u> Text of Proposed Order)(Bridges, Andrew) (Entered: 12/21/2015)
12/22/2015	<u>122</u>	LARGE ADDITIONAL ATTACHMENT(S) filed by PUBLIC.RESOURCE.ORG, INC. <u>121</u> MOTION for Summary Judgment filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Exhibit 1–10 Public, # <u>2</u> Exhibit 11–20 Public, # <u>3</u> Exhibit 21–40 Public, # <u>4</u> Exhibit 41–60 Public, # <u>5</u> Exhibit 61–80 Public, # <u>6</u> Exhibit 81–100 Public, # <u>7</u> Exhibit 101–120 Public, # <u>8</u> Exhibit 121–140 Public, # <u>9</u> Exhibit 141–157 Public)(Bridges, Andrew) (Entered: 12/22/2015)
12/22/2015	<u>123</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Memorandum in Support of Motion to Strike Jarosz Report, # <u>2</u> Exhibit 4 in Support of Kathleen Lu's Declaration, # <u>3</u> Exhibit 6 in support of Kathleen Lu's Declaration, # <u>4</u> Exhibit 8 in support of Kathleen Lu's Declaration, # <u>5</u> Certificate of Service)(Lu, Kathleen) (Entered: 12/22/2015)
12/22/2015	<u>124</u>	MOTION to Strike <u>118</u> MOTION for Summary Judgment and <i>Permanent Injunction</i> MOTION for Permanent Injunction by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Memorandum in Support [Redacted], # <u>2</u> Declaration of Kathleen Lu, # <u>3</u> Exhibit 1 to Lu Declaration, # <u>4</u> Exhibit 2 to Lu Declaration, # <u>5</u> Exhibit 3 to Lu Declaration, # <u>6</u> Exhibit 4 [Redacted] to Lu Declaration, # <u>7</u> Exhibit 5 to Lu Declaration, # <u>8</u> Exhibit 6 [Redacted] to Lu Declaration, # <u>9</u> Exhibit 7 to Lu Declaration, # <u>10</u> Exhibit 8 [Redacted] to Lu Declaration, # <u>11</u> Text of Proposed Order)(Bridges, Andrew) (Entered: 12/22/2015)
12/22/2015	<u>125</u>	CERTIFICATE OF SERVICE by PUBLIC.RESOURCE.ORG, INC. re <u>120</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) . (Bridges, Andrew) (Entered: 12/22/2015)
12/22/2015	<u>126</u>	CERTIFICATE OF SERVICE by PUBLIC.RESOURCE.ORG, INC. re <u>123</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) <i>Motion to Strike Jarosz Report.</i> (Lu, Kathleen) (Entered: 12/22/2015)
12/28/2015	<u>127</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Gerald W. Griffin, :Firm– Carter Ledyard & Milburn LLP, :Address– 2 Wall Street, New York, NY 10005. Phone No. – (212) 732–3200. Fax No. – (212) 732–3232 Fee Status: Paid, \$100.00, Receipt No. 0090–4361814. by American National Standards Institute, Inc. (Attachments: # <u>1</u> Declaration of Gerald W. Griffin, # <u>2</u> Text of Proposed Order)(Hochman Rothell, Bonnie) Modified on 12/28/2015 to add payment

		information. (ztnr) (Entered: 12/28/2015)
12/28/2015	<u>128</u>	Unopposed MOTION for Leave to File <i>Amicus Curiae Brief</i> by American National Standards Institute, Inc. (Attachments: # <u>1</u> Text of Proposed Order)(Hochman Rothell, Bonnie) (Entered: 12/28/2015)
12/28/2015	<u>129</u>	STIPULATION <i>Regarding Time To Respond To Motion To Strike</i> by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC.. (Attachments: # <u>1</u> [Proposed] Order)(Cunningham, Jason) (Entered: 12/28/2015)
12/29/2015		MINUTE ORDER: Having considered the Stipulation filed by the parties <u>129</u> , it is hereby ordered that Plaintiffs shall respond to Defendant's motion strike <u>124</u> by January 21, 2016. Defendant's reply brief is due by February 4, 2016. Going forward, the parties must file a motion seeking court approval to extend deadlines. Signed by Judge Tanya S. Chutkan on 12/29/15. (DJS) (Entered: 12/29/2015)
12/29/2015		MINUTE ORDER: Granting <u>128</u> Motion for the following entities to file a combined amicus brief on behalf of Plaintiffs: The American National Standards Institute, Inc. ("ANSI"), American Society of Safety Engineers ("ASSE"), The Institute of Electrical and Electronics Engineers, Incorporated ("IEEE"), International Association of Plumbing & Mechanical Officials ("IAPMO"), National Electrical Manufacturers Association ("NEMA"), North American Energy Standards Board ("NAESB"), and Underwriters Laboratories Inc. ("UL"). Signed by Judge Tanya S. Chutkan on 12/29/15. (DJS) (Entered: 12/29/2015)
12/29/2015		Set/Reset Deadlines: Responses due by 1/21/2016 Replies due by 2/4/2016. (zsm) (Entered: 12/29/2015)
12/31/2015	<u>130</u>	MOTION for Leave to File <i>Amicus Curiae Brief</i> by AMERICAN INSURANCE ASSOCIATION (Attachments: # <u>1</u> Text of Proposed Order)(Hollywood, Meegan) Modified on 1/7/2016 (zrdj). (Entered: 12/31/2015)
01/08/2016	<u>131</u>	NOTICE of Appearance by Jeffrey T. Pearlman on behalf of Sina Bahram (Pearlman, Jeffrey) (Entered: 01/08/2016)
01/08/2016	<u>132</u>	Unopposed MOTION for Leave to File <i>AMICUS CURIAE BRIEF IN SUPPORT OF DEFENDANT</i> by Sina Bahram (Pearlman, Jeffrey). (Entered: 01/08/2016)
01/08/2016	<u>133</u>	Unopposed MOTION for Leave to File <i>AMICUS CURIAE BRIEF IN SUPPORT OF DEFENDANT</i> by Sina Bahram (Attachments: # <u>1</u> Text of Proposed Order [PROPOSED] ORDER GRANTING UNOPPOSED MOTION OF SINA BAHRAM FOR LEAVE TO FILE AMICUS CURIAE BRIEF IN SUPPORT OF DEFENDANT)(Pearlman, Jeffrey) (Entered: 01/08/2016)
01/08/2016	<u>134</u>	NOTICE of Appearance by Anthony A. Onorato on behalf of International Code Council, Inc. (Onorato, Anthony) (Entered: 01/08/2016)
01/08/2016	<u>135</u>	Unopposed MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Alan S. Wernick, :Firm– FisherBroyles LLP, :Address– 203 North LaSalle Street, Suite 2100, Chicago, IL 60601. Phone No. – (847) 786–1005. Fax No. – (847) 412–9965 Filing fee \$ 100, receipt number 0090–4372570. Fee Status: Fee Paid. by International Code Council, Inc. (Onorato, Anthony) (Entered: 01/08/2016)
01/08/2016	<u>136</u>	Unopposed MOTION for Leave to File <i>Amicus Curiae Brief in Support of Plaintiffs' Motion for Summary Judgment</i> by International Code Council, Inc. (Attachments: # <u>1</u> Text of Proposed Order)(Onorato, Anthony) (Entered: 01/08/2016)
01/08/2016	<u>137</u>	AFFIDAVIT re <u>135</u> Unopposed MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Alan S. Wernick, :Firm– FisherBroyles LLP, :Address– 203 North LaSalle Street, Suite 2100, Chicago, IL 60601. Phone No. – (847) 786–1005. Fax No. – (847) 412–9965 Filing <i>Declaration of Alan S. Wernick in Support of Motion for Admission Pro Hac Vice and Proposed Order</i> by International Code Council, Inc.. (Attachments: # <u>1</u> Text of Proposed Order)(Onorato, Anthony) (Entered: 01/08/2016)
01/09/2016		MINUTE ORDER: Granting <u>135</u> Motion for Leave to Appear Pro Hac Vice. Attorney Alan S. Wernick is hereby admitted pro hac vice to appear in this matter on behalf of amicus International Code Council, Inc. Signed by Judge Tanya S. Chutkan on 1/9/16.

		(DJS) Modified on 1/9/2016 (DJS). (Entered: 01/09/2016)
01/09/2016		MINUTE ORDER: Granting <u>127</u> Motion for Leave to Appear Pro Hac Vice. Attorney Gerald W. Griffin is hereby admitted pro hac vice to appear in this matter on behalf of amici The American National Standards Institute, Inc. ("ANSI"), American Society of Safety Engineers ("ASSE"), The Institute of Electrical and Electronics Engineers, Incorporated ("IEEE"), International Association of Plumbing & Mechanical Officials ("IAPMO"), National Electrical Manufacturers Association ("NEMA"), North American Energy Standards Board ("NAESB"), and Underwriters Laboratories Inc. ("UL"). Signed by Judge Tanya S. Chutkan on 1/9/16. (DJS) (Entered: 01/09/2016)
01/10/2016		MINUTE ORDER: Granting <u>130</u> Motion for American Insurance Association (AIA) to file an amicus brief on behalf of Plaintiffs. Signed by Judge Tanya S. Chutkan on 1/10/16. (DJS) (Entered: 01/10/2016)
01/10/2016		MINUTE ORDER: Granting <u>133</u> Motion for Sina Bahram to file an amicus brief on behalf of Defendant. Signed by Judge Tanya S. Chutkan on 1/10/16. (DJS) (Entered: 01/10/2016)
01/10/2016		MINUTE ORDER: Granting <u>136</u> Motion of International Code Council, Inc. to file an amicus brief on behalf of Plaintiffs. Signed by Judge Tanya S. Chutkan on 1/10/16. (DJS) (Entered: 01/10/2016)
01/11/2016	<u>138</u>	NOTICE of Appearance by Charles Duan on behalf of PUBLIC KNOWLEDGE, KNOWLEGE ECOLOGY INTERNATIONAL, AMERICAN LIBRARY ASSOCIATION (Duan, Charles) (Entered: 01/11/2016)
01/11/2016	<u>139</u>	Amicus brief by AMERICAN INSURANCE ASSOCIATION in support of Plaintiffs' Motion for Summary Judgment. (Hollywood, Meegan) Modified on 1/12/2016 (DJS). (Entered: 01/11/2016)
01/11/2016	<u>140</u>	MOTION for Leave to File <i>Amicus Curiae Brief</i> by AMERICAN LIBRARY ASSOCIATION, KNOWLEGE ECOLOGY INTERNATIONAL, PUBLIC KNOWLEDGE (Attachments: # <u>1</u> Exhibit Amicus Curiae Brief, # <u>2</u> Text of Proposed Order Proposed Order, # <u>3</u> Exhibit Corporate Disclosure Statement)(Duan, Charles) (Entered: 01/11/2016)
01/11/2016	<u>141</u>	Unopposed MOTION for Leave to File <i>Amicus Brief</i> by Law Scholars (Attachments: # <u>1</u> Exhibit Amicus Brief, # <u>2</u> Text of Proposed Order Proposed order)(Gellis, Catherine) (Entered: 01/11/2016)
01/11/2016		ORDER granting <u>140</u> Motion for Leave to File Brief of Amici Curiae. Signed by Judge Tanya S. Chutkan on 1/11/16. (lctsc2) (Entered: 01/11/2016)
01/11/2016		ORDER granting <u>141</u> Motion for Leave to File Brief of Amici Curiae. Signed by Judge Tanya S. Chutkan on 1/11/16. (lctsc2) (Entered: 01/11/2016)
01/11/2016	<u>142</u>	Amicus Brief by AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (Hochman Rothell, Bonnie) Modified on 1/12/2016 (DJS). (Entered: 01/11/2016)
01/11/2016	<u>143</u>	NOTICE of Appearance by Bruce D. Brown on behalf of The Reporters Committee for Freedom of the Press (Brown, Bruce) (Main Document 143 replaced on 1/12/2016) (ztd). (Entered: 01/11/2016)
01/11/2016	<u>144</u>	Consent MOTION for Leave to File <i>Amicus Curiae Brief</i> by The Reporters Committee for Freedom of the Press (Attachments: # <u>1</u> Proposed Amicus Curiae Brief, # <u>2</u> Text of Proposed Order)(Brown, Bruce) (Entered: 01/11/2016)
01/11/2016	<u>145</u>	Amicus Brief by INTERNATIONAL CODE COUNCIL, INC. (Onorato, Anthony) Modified on 1/12/2016 (DJS). (Entered: 01/11/2016)
01/11/2016	<u>146</u>	Amicus Brief by SINA BAHRAM. (Pearlman, Jeffrey) Modified on 1/12/2016 (DJS). (Entered: 01/11/2016)
01/11/2016	<u>147</u>	AMICUS BRIEF by AMERICAN LIBRARY ASSOCIATION, KNOWLEGE ECOLOGY INTERNATIONAL, PUBLIC KNOWLEDGE. (znmw) (Entered: 01/12/2016)

01/11/2016	<u>148</u>	LCvR 7.1 CERTIFICATE OF DISCLOSURE of Corporate Affiliations and Financial Interests by AMERICAN LIBRARY ASSOCIATION, KNOWLEGE ECOLOGY INTERNATIONAL, PUBLIC KNOWLEDGE. (znmw) (Entered: 01/12/2016)
01/11/2016	<u>149</u>	AMICUS BRIEF by LAW SCHOLARS. (znmw) (Entered: 01/12/2016)
01/11/2016	<u>150</u>	ENTERED IN ERROR. . . .Corporate Disclosure Statement by AMERICAN LIBRARY ASSOCIATION, KNOWLEGE ECOLOGY INTERNATIONAL, PUBLIC KNOWLEDGE. (td) Modified on 1/12/2016 (td). (Entered: 01/12/2016)
01/12/2016		ORDER granting <u>144</u> Motion for Leave to File Brief of Amicus Curiae. Signed by Judge Tanya S. Chutkan on 1/12/16. (lctsc2) (Entered: 01/12/2016)
01/12/2016		NOTICE OF CORRECTED DOCKET ENTRY: re <u>150</u> Corporate Disclosure Statement was entered in error and is a duplicate of docket entry no. <u>148</u> . (td) (Entered: 01/12/2016)
01/12/2016	<u>151</u>	AMICUS BRIEF by REPORTERS COMMITTEE FOR FREEDOM OF THE PRESS. (td) (Entered: 01/12/2016)
01/13/2016	<u>152</u>	Consent MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Sebastian E. Kaplan, :Firm– Fenwick & West LLP, :Address– 555 California Street, 12th Fl., San Francisco, CA 94104. Phone No. – (415) 875–2300. Fax No. – (415) 281–1350 Filing fee \$ 100, receipt number 0090–4377635. Fee Status: Fee Paid. by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Declaration of Sebastian Kaplan, # <u>2</u> Text of Proposed Order)(Stoltz, Mitchell) (Entered: 01/13/2016)
01/21/2016	<u>153</u>	VACATED PURSUANT TO MINUTE ORDER FILED 2/3/16. . . .ORDER: Holding in abeyance Defendant's motion to file documents under seal <u>120</u> . Defendant's filing due 2/5/16. (See order for details). Signed by Judge Tanya S. Chutkan on 1/21/16. (DJS) Modified on 2/3/2016 (td). (Entered: 01/21/2016)
01/21/2016	<u>154</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Text of Proposed Order Proposed Order Granting Motion to Seal, # <u>2</u> Exhibit Exhibit A to Declaration of Christian Dubay, # <u>3</u> Exhibit Exhibit 1 to Declaration of Steve Comstock)(Klaus, Kelly) (Entered: 01/21/2016)
01/21/2016	<u>155</u>	REPLY to opposition to motion re <u>118</u> MOTION for Summary Judgment filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Attachments: # <u>1</u> Supplemental Statement of Undisputed Facts, # <u>2</u> Disputes with Defendant's Statement of Facts, Evidentiary Objections and Opposition to Request for Judicial Notice, # <u>3</u> Response to Defendant's Statement of Facts, # <u>4</u> Response to Defendant's Evidentiary Objections, # <u>5</u> Declaration of Steven Comstock, # <u>6</u> Declaration of Christian Dubay, # <u>7</u> Supplemental Declaration of Thomas O'Brien, # <u>8</u> Supplemental Declaration of Jordana Rubel, # <u>9</u> Supplemental Declaration of James Thomas)(Fee, J.) Modified on 1/22/2016 to correct linkage (td). (Entered: 01/21/2016)
01/21/2016	<u>156</u>	Memorandum in opposition to re <u>124</u> MOTION to Strike <u>118</u> MOTION for Summary Judgment and <i>Permanent Injunction</i> MOTION for Permanent Injunction filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Fee, J.) (Entered: 01/21/2016)
01/21/2016	<u>157</u>	Memorandum in opposition to re <u>121</u> MOTION for Summary Judgment filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR–CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC..(See docket entry no. { 155}) (td) (Entered: 01/22/2016)
01/22/2016		Set/Reset Deadlines: Defendant's Supplemental Filing due by 2/5/2016. (tth) (Entered: 01/22/2016)

01/25/2016	<u>158</u>	MOTION to Withdraw as Attorney <i>Simeon M Schopf</i> by AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC. (Attachments: # <u>1</u> Text of Proposed Order Proposed Order)(Cunningham, Jason) (Entered: 01/25/2016)
01/27/2016	<u>159</u>	MOTION for Leave to Appear Pro Hac Vice :Attorney Name– Rose Leda Ehler, :Firm– MUNGER, TOLLES & OLSON LLP, :Address– 560 Mission St., 27th Floor, San Francisco, CA 94105–2907. Phone No. – (415) 512–4000. Fax No. – (415) 644–6971 Filing fee \$ 100, receipt number 0090–4391071. Fee Status: Fee Paid. by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Declaration of Rose Leda Ehler in support of Motion to Admit Pro Hac Vice, # <u>2</u> Text of Proposed Order of Admission Pro Hac Vice)(Choudhury, Anjan) (Entered: 01/27/2016)
01/28/2016		MINUTE ORDER: Granting <u>159</u> Motion for Leave to Appear Pro Hac Vice. Attorney Rose Leda Ehler is hereby admitted pro hac vice to appear in this matter on behalf of Plaintiff National Fire Protection Association, Inc. Signed by Judge Tanya S. Chutkan on 1/28/16. (DJS) (Entered: 01/28/2016)
01/29/2016		MINUTE ORDER granting <u>158</u> Motion to Withdraw as Attorney. Attorney Simeon Meir Schopf terminated. Signed by Judge Tanya S. Chutkan on 1/29/16. (zsm) (Entered: 01/29/2016)
02/03/2016		MINUTE ORDER: The Court's 1/21/16 Order <u>153</u> is hereby VACATED. Signed by Judge Tanya S. Chutkan on 2/3/16. (DJS) (Entered: 02/03/2016)
02/04/2016		MINUTE ORDER granting <u>120</u> Sealed Motion for Leave to File Document Under Seal; granting <u>123</u> Sealed Motion for Leave to File Document Under Seal; granting <u>154</u> Sealed Motion for Leave to File Document Under Seal. Signed by Judge Tanya S. Chutkan on 2/4/16. (zsm) (Entered: 02/04/2016)
02/04/2016	<u>160</u>	SEALED DOCUMENT (Main document Part 1 of 4) filed by PUBLIC.RESOURCE.ORG, INC.. re Order on Sealed Motion for Leave to File Document Under Seal,,,,,. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Part 2 of 4, # <u>2</u> Part 3 of 4, # <u>3</u> Part 4 of 4)(ztd) (Entered: 02/04/2016)
02/04/2016	<u>161</u>	SEALED DOCUMENT filed by PUBLIC.RESOURCE.ORG, INC.. re <u>160</u> Sealed Document, filed by PUBLIC.RESOURCE.ORG, INC.. (This document is SEALED and only available to authorized persons.)(ztd) (Entered: 02/04/2016)
02/04/2016	<u>162</u>	SEALED DOCUMENT (Part 1 of 27) filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. re Order on Sealed Motion for Leave to File Document Under Seal,,,,,. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Part 2 of 27, # <u>2</u> Part 3 of 27, # <u>3</u> Part 4 of 27, # <u>4</u> Part 5 of 27, # <u>5</u> Part 6 of 27, # <u>6</u> Part 7 of 27, # <u>7</u> Part 8 of 27, # <u>8</u> Part 9 of 27, # <u>9</u> Part 10 of 27, # <u>10</u> Part 11 of 27, # <u>11</u> Part 12 of 27, # <u>12</u> Part 13 of 27, # <u>13</u> Part 14 of 27, # <u>14</u> Part 15 of 27, # <u>15</u> Part 16 of 27, # <u>16</u> Part 17 of 27, # <u>17</u> Part 18 of 27, # <u>18</u> Part 19 of 27, # <u>19</u> Part 20 of 27, # <u>20</u> Part 21 of 27, # <u>21</u> Part 22 of 27, # <u>22</u> Part 23 of 27, # <u>23</u> Part 24 of 27, # <u>24</u> Part 25 of 27, # <u>25</u> Part 26 of 27, # <u>26</u> Part 27 of 27)(ztd) (Entered: 02/04/2016)
02/04/2016	<u>163</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> [Sealed] Matthew Becker Declaration, # <u>2</u> [Sealed] Supplemental Statement of Undisputed Material Facts, # <u>3</u> [Sealed] Supplemental Statement of Disputed Material Facts, # <u>4</u> [Sealed] Consolidated List of Exhibits, # <u>5</u> [Sealed] Exhibit 7, # <u>6</u> [Sealed] Exhibit 10, # <u>7</u> [Sealed] Exhibit 11, # <u>8</u> Text of Proposed Order, # <u>9</u> Certificate of Service)(Bridges, Andrew) (Entered: 02/05/2016)
02/05/2016	<u>164</u>	REPLY in support of motion re <u>163</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.), <u>120</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> [Redacted] Declaration of Matthew Becker, # <u>2</u> [Redacted] Consolidated List of

		Exhibits, # <u>3</u> [Redacted] Response to Supplemental Statement of Facts, # <u>4</u> [Redacted] Response to Statement of Disputed Facts, # <u>5</u> Supplemental Objections to Evidence, # <u>6</u> Response to Evidentiary Objections, # <u>7</u> Supplemental Request for Judicial Notice, # <u>8</u> Supplemental Declaration of Carl Malamud, # <u>9</u> Exhibit 1, # <u>10</u> Exhibit 2, # <u>11</u> Exhibit 3, # <u>12</u> Exhibit 4, # <u>13</u> Exhibit 5, # <u>14</u> Exhibit 6, # <u>15</u> Exhibit [Redacted] 7, # <u>16</u> Exhibit 8, # <u>17</u> Exhibit 9, # <u>18</u> Exhibit [Redacted] 10, # <u>19</u> Exhibit [Redacted] 11, # <u>20</u> Exhibit 12, # <u>21</u> Exhibit 13, # <u>22</u> Exhibit 14, # <u>23</u> Exhibit 15, # <u>24</u> Exhibit 16, # <u>25</u> Exhibit 17)(Bridges, Andrew) Modified text on 2/5/2016 (ztd). (Entered: 02/05/2016)
02/05/2016	<u>165</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> [Sealed] Reply In Support of Motion to Strike the Expert Report of John Jarosz, # <u>2</u> Text of Proposed Order, # <u>3</u> Certificate of Service)(Bridges, Andrew) (Entered: 02/05/2016)
02/05/2016	<u>166</u>	REPLY in support to motion re <u>165</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.), <u>123</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) filed by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) Modified text on 2/5/2016 (ztd). (Entered: 02/05/2016)
02/05/2016		MINUTE ORDER granting <u>163</u> Sealed Motion for Leave to File Document Under Seal; granting <u>165</u> Sealed Motion for Leave to File Document Under Seal. Signed by Judge Tanya S. Chutkan on 2/5/16. (zsm) (Entered: 02/05/2016)
02/05/2016	<u>167</u>	SEALED DOCUMENT filed by PUBLIC.RESOURCE.ORG, INC.. re Order on Sealed Motion for Leave to File Document Under Seal,. (This document is SEALED and only available to authorized persons.)(ztd) (Entered: 02/05/2016)
02/05/2016	<u>168</u>	SEALED REPLY TO OPPOSITION filed by PUBLIC.RESOURCE.ORG, INC. re <u>124</u> MOTION to Strike <u>118</u> MOTION for Summary Judgment <i>and Permanent Injunction</i> MOTION for Permanent Injunction (ztd) (Entered: 02/05/2016)
02/08/2016		MINUTE ORDER: Granting <u>152</u> Motion for Leave to Appear Pro Hac Vice. Attorney Sebastian E. Kaplan is hereby admitted pro hac vice to appear in this matter on behalf of Defendant. Signed by Judge Tanya S. Chutkan on 2/8/16. (DJS) (Entered: 02/08/2016)
02/08/2016	<u>169</u>	MOTION to Take Judicial Notice by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Exhibit 1 to Plaintiffs' Request For Judicial Notice)(Ehler, Rose) (Entered: 02/08/2016)
03/14/2016		SEALED MINUTE ORDER granting <u>97</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL(This document is SEALED and only available to authorized persons.)Signed by Judge Tanya S. Chutkan on 3/14/16.(zsm) (Entered: 03/14/2016)
03/14/2016	<u>170</u>	SEALED DOCUMENT (Exhibits) filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS. re Sealed Order. (This document is SEALED and only available to authorized persons.)(ztd) (Entered: 03/14/2016)
06/03/2016		MINUTE ORDER. Motion Hearing on all pending motions set for 9/12/2016 at 9:30 AM in Courtroom 2 before Judge Tanya S. Chutkan. Signed by Judge Tanya S. Chutkan on 6/3/16. (lctsc2) (Entered: 06/03/2016)
06/03/2016		Set/Reset Hearings: Motion Hearing set for 9/12/2016 at 9:30 AM in Courtroom 2 before Judge Tanya S. Chutkan. (zsm) (Entered: 06/03/2016)
06/30/2016	<u>171</u>	NOTICE of Withdrawal of Counsel of Nathan M. Rehn by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Rehn, Nathan) (Entered: 06/30/2016)
09/09/2016		MINUTE ORDER: The motions hearing previously scheduled for 9:30 a.m. on 9/12/2016 has been rescheduled to begin at 9:00 a.m. in Courtroom 2. Signed by Judge Tanya S. Chutkan on 9/9/2016. (lctsc2) (Entered: 09/09/2016)

09/09/2016		Set/Reset Hearings: Motion Hearing set for 9/12/2016 at 9:00 AM in Courtroom 2 before Judge Tanya S. Chutkan. (zsm) (Entered: 09/09/2016)
09/12/2016		Minute Entry for proceedings held before Judge Tanya S. Chutkan: Motion Hearing held on 9/12/2016 re <u>118</u> MOTION for Summary Judgment and Permanent Injunction MOTION for Permanent Injunction filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC., AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., <u>121</u> MOTION for Summary Judgment filed by PUBLIC.RESOURCE.ORG, INC. Motions taken under advisement. (Court Reporter Bryan Wayne.) (zsm) (Entered: 09/12/2016)
09/21/2016	<u>172</u>	ORDER denying <u>124</u> Motion to Strike Expert Report. Signed by Judge Tanya S. Chutkan on 9/21/2016. (lctsc2) (Entered: 09/21/2016)
09/21/2016		MINUTE ORDER granting <u>169</u> Plaintiffs' Motion to Take Judicial Notice. Signed by Judge Tanya S. Chutkan on 9/21/2016. (lctsc2) (Entered: 09/21/2016)
10/13/2016	<u>173</u>	<p>TRANSCRIPT OF 9/12/16 MOTIONS HEARING, before Judge Tanya S. Chutkan, held on September 12, 2016. Page Numbers: 1–142. Date of Issuance: 10/13/16. Court Reporter: Bryan A. Wayne. Transcripts may be ordered by submitting the <u>Transcript Order Form</u></p> <p>For the first 90 days after this filing date, the transcript may be viewed at the courthouse at a public terminal or purchased from the court reporter referenced above. After 90 days, the transcript may be accessed via PACER. Other transcript formats, (multi–page, condensed, CD or ASCII) may be purchased from the court reporter.</p> <p>NOTICE RE REDACTION OF TRANSCRIPTS: The parties have twenty–one days to file with the court and the court reporter any request to redact personal identifiers from this transcript. If no such requests are filed, the transcript will be made available to the public via PACER without redaction after 90 days. The policy, which includes the five personal identifiers specifically covered, is located on our website at www.dcd.uscourts.gov.</p> <p>Redaction Request due 11/3/2016. Redacted Transcript Deadline set for 11/13/2016. Release of Transcript Restriction set for 1/11/2017.(Wayne, Bryan) (Entered: 10/13/2016)</p>
10/14/2016	<u>174</u>	NOTICE OF WITHDRAWAL OF APPEARANCE as to PUBLIC.RESOURCE.ORG, INC.. Attorney Kathleen Lu terminated. (Lu, Kathleen) (Entered: 10/14/2016)
02/02/2017	<u>175</u>	MEMORANDUM AND OPINION re <u>118</u> Plaintiffs' motion for summary judgment and <u>121</u> Defendant's cross–motion for summary judgment. Signed by Judge Tanya S. Chutkan on 2/2/2017. (lctsc2) (Entered: 02/02/2017)
02/02/2017	<u>176</u>	ORDER granting <u>118</u> Plaintiffs' motion for summary judgment and denying <u>121</u> Defendant's cross–motion for summary judgment. See Order for more details. Signed by Judge Tanya S. Chutkan on 2/2/2017. (lctsc2) (Entered: 02/02/2017)
02/02/2017		MINUTE ORDER: Parties are ORDERED to submit a JOINT status report by 2/17/2017 (1) updating the court as to Defendant's compliance with <u>176</u> the court's order to remove the nine standards from its website and to cease all unauthorized use of Plaintiffs' trademarks, and (2) providing a jointly proposed schedule for this case going forward to resolve Plaintiffs' claims as to the remaining standards. Signed by Judge Tanya S. Chutkan on 2/2/2017. (lctsc2) (Entered: 02/02/2017)
02/03/2017		Set/Reset Deadlines: Joint Status Report due by 2/17/2017. (tb) (Entered: 02/03/2017)
02/15/2017	<u>177</u>	NOTICE OF APPEAL TO DC CIRCUIT COURT as to <u>175</u> Memorandum & Opinion, <u>176</u> Order on Motion for Summary Judgment, Order on Motion for Permanent Injunction, by PUBLIC.RESOURCE.ORG, INC.. Filing fee \$ 505, receipt number 0090–4843999. Fee Status: Fee Paid. Parties have been notified. (Bridges, Andrew) (Entered: 02/15/2017)
02/16/2017	<u>178</u>	Transmission of the Notice of Appeal, Order Appealed, and Docket Sheet to US Court of Appeals. The Court of Appeals fee was paid this date 2/15/17 re <u>177</u> Notice of Appeal to DC Circuit Court,. (td) (Entered: 02/16/2017)

02/17/2017	<u>179</u>	Joint STATUS REPORT by AMERICAN SOCIETY FOR TESTING AND MATERIALS. (Rubel, Jordana) (Entered: 02/17/2017)
02/28/2017		USCA Case Number 17-7035 for <u>177</u> Notice of Appeal to DC Circuit Court, filed by PUBLIC.RESOURCE.ORG, INC.. (td) (Entered: 02/28/2017)
03/01/2017	<u>180</u>	NOTICE <i>RE PRELIMINARY AND NON-BINDING STATEMENT OF ISSUES BY APPELLANT/DEFENDANT-COUNTERCLAIMANT PUBLIC.RESOURCE.ORG, INC.</i> by PUBLIC.RESOURCE.ORG, INC. (Bridges, Andrew) (Entered: 03/01/2017)
03/01/2017	<u>181</u>	NOTICE <i>OF TRANSCRIPT ORDER BY DEFENDANT-COUNTERCLAIMANT PUBLIC.RESOURCE.ORG, INC.</i> by PUBLIC.RESOURCE.ORG, INC. (Bridges, Andrew) (Entered: 03/01/2017)
04/03/2017	<u>182</u>	ORDER amending <u>176</u> Order. Signed by Judge Tanya S. Chutkan on 4/3/2017. (lctsc2) (Entered: 04/03/2017)
04/06/2017	<u>183</u>	Amended NOTICE OF APPEAL re appeal <u>177</u> by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 04/06/2017)
04/07/2017	<u>184</u>	Supplemental Record on Appeal transmitted to US Court of Appeals re <u>183</u> Amended Notice of Appeal ;USCA Case Number 17-7035. (jf) (Entered: 04/07/2017)
07/06/2017		MINUTE ORDER: In light of the parties' pending appeal before the Circuit Court, the Clerk of the Court is hereby directed to Administratively Close this case. Upon resolution of the appeal (#17-7035) the parties may file a motion to return this case to the court's active docket. Any such motion shall contain a proposed order for moving forward with this case. Signed by Judge Tanya S. Chutkan on 7/6/17. (DJS) (Entered: 07/06/2017)
08/28/2018	<u>185</u>	MANDATE of USCA as to (120 in 1:14-cv-00857-TSC) Notice of Appeal to DC Circuit Court, filed by PUBLIC.RESOURCE.ORG, INC., (177 in 1:13-cv-01215-TSC) Notice of Appeal to DC Circuit Court, filed by PUBLIC.RESOURCE.ORG, INC. ; USCA Case Number 17-7035 Consolidated with 17-7039. (Attachments: # <u>1</u> Exhibit)(zrdj) (Entered: 09/07/2018)
12/04/2018	<u>186</u>	NOTICE of Change of Address by Andrew Phillip Bridges (Bridges, Andrew) (Entered: 12/04/2018)
12/27/2018	<u>187</u>	NOTICE OF WITHDRAWAL OF APPEARANCE as to AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC.. Attorney Joseph R. Wetzel terminated. (Steinthal, Kenneth) (Entered: 12/27/2018)
02/07/2019	<u>188</u>	MOTION to Reopen Case <i>AND TO ENTER A SCHEDULING ORDER FOR CROSS-MOTIONS FOR SUMMARY JUDGMENT LIMITED TO THE ISSUES OF COPYRIGHT AND TRADEMARK FAIR USE</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Text of Proposed Order)(Fee, J.). Added MOTION for Order on 2/7/2019 (ztd). (Entered: 02/07/2019)
02/07/2019	<u>189</u>	NOTICE of Appearance by Jane W. Wise on behalf of AMERICAN SOCIETY FOR TESTING AND MATERIALS (Wise, Jane) (Entered: 02/07/2019)
02/14/2019	<u>190</u>	Memorandum in opposition to re <u>188</u> MOTION to Reopen Case <i>AND TO ENTER A SCHEDULING ORDER FOR CROSS-MOTIONS FOR SUMMARY JUDGMENT LIMITED TO THE ISSUES OF COPYRIGHT AND TRADEMARK FAIR USE</i> MOTION for Order <i>and Request for Status Conference</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 02/14/2019)
02/21/2019	<u>191</u>	REPLY to opposition to motion re <u>188</u> MOTION to Reopen Case <i>AND TO ENTER A SCHEDULING ORDER FOR CROSS-MOTIONS FOR SUMMARY JUDGMENT LIMITED TO THE ISSUES OF COPYRIGHT AND TRADEMARK FAIR USE</i> MOTION for Order filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Fee, J.) (Entered: 02/21/2019)

02/26/2019		MINUTE ORDER: Plaintiffs' motion <u>188</u> to reopen the case and enter a scheduling order for cross-motions for summary judgment is GRANTED, in part, and DENIED, in part. In accord with the Circuit's July 17, 2018 Judgment, the court hereby reopens and restores this case to the court's active docket. With respect to the issues raised regarding case management, the court exercises its discretion and hereby rejects Plaintiffs' request to enter briefing schedule as well as grants Defendant's request to reopen discovery on both issues—fair use and ownership. However, the court finds that Defendant's proposed nine-month timeline does not seem warranted. Accordingly, the parties are directed to meet and confer and file a joint proposed discovery schedule on or before March 12, 2019. Signed by Judge Tanya S. Chutkan on 2/26/2019. (lctsc1) (Entered: 02/26/2019)
02/28/2019		Set/Reset Deadlines: Joint Discovery Schedule due by 3/12/2019. (tb) (Entered: 02/28/2019)
03/05/2019	<u>192</u>	NOTICE of Appearance by Rachel G. Miller-Ziegler on behalf of NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Miller-Ziegler, Rachel) (Main Document 192 replaced on 3/5/2019) (znmw). (Entered: 03/05/2019)
03/12/2019	<u>193</u>	PROPOSED BRIEFING SCHEDULE <i>for Discovery and Briefing</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Fee, J.) Modified event title on 3/13/2019 (znmw). (Entered: 03/12/2019)
05/17/2019		MINUTE ORDER: It is hereby ordered that the parties shall adhere to the following deadlines: Plaintiffs' Motion for Summary Judgment due October 4, 2019. Defendant's Combined Response and Motion for Summary Judgment due November 8, 2019. Amicus Briefs due November 22, 2019. Plaintiffs' Combined Reply/Response due December 6, 2019. Defendants' Reply due December 20, 2019. Signed by Judge Tanya S. Chutkan on 5/17/19.(DJS) (Entered: 05/17/2019)
05/17/2019		Set/Reset Deadlines: Cross Motion due by 11/8/2019. Response to Cross Motion due by 12/6/2019. Reply to Cross Motion due by 12/20/2019. Amicus Briefs due by 11/22/2019. Summary Judgment motion due by 10/4/2019. Response to Motion for Summary Judgment due by 11/8/2019. Reply to Motion for Summary Judgment due by 12/6/2019. (tb) (Entered: 05/17/2019)
05/21/2019		AMENDED MINUTE SCHEDULING ORDER: It is hereby ordered that the parties shall adhere to the following deadlines: Additional Document Requests and Interrogatories due May 27, 2019; Substantial Completion of Document Production due July 19, 2019; Close of Fact Discovery September 9, 2019; Plaintiffs' Motion for Summary Judgment due October 4, 2019. Defendant's Combined Response and Motion for Summary Judgment due November 8, 2019. Amicus Briefs due November 22, 2019. Plaintiffs' Combined Reply/Response due December 6, 2019. Defendants' Reply due December 20, 2019. Signed by Judge Tanya S. Chutkan on 5/21/19. (DJS) (Entered: 05/21/2019)
05/22/2019		Set/Reset Deadlines: Fact Discovery due by 9/9/2019. (tb) (Entered: 05/22/2019)
07/23/2019	<u>194</u>	MOTION to Stay <i>All Deadlines Pending Decision of United States Supreme Court, Georgia v. Public.Resource.Org, Inc.</i> by NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Text of Proposed Order)(Klaus, Kelly) (Entered: 07/23/2019)
08/06/2019	<u>195</u>	Memorandum in opposition to re <u>194</u> MOTION to Stay <i>All Deadlines Pending Decision of United States Supreme Court, Georgia v. Public.Resource.Org, Inc.</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 08/06/2019)
08/20/2019	<u>196</u>	REPLY to opposition to motion re <u>194</u> MOTION to Stay <i>All Deadlines Pending Decision of United States Supreme Court, Georgia v. Public.Resource.Org, Inc.</i> filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Klaus, Kelly) (Entered: 08/20/2019)
09/23/2019		MINUTE ORDER denying <u>194</u> Motion to Stay. Signed by Judge Tanya S. Chutkan on 9/23/19. (DJS) (Entered: 09/23/2019)

10/01/2019	<u>197</u>	STIPULATION <i>FOR EXTENSION OF TIME</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS. (Attachments: # <u>1</u> Text of Proposed Order Proposed Order)(Wise, Jane) Modified event on 10/2/2019 (ztd). (Entered: 10/01/2019)
10/02/2019		MINUTE ORDER: The parties' joint motion <u>197</u> for an extension of time is GRANTED. The parties shall adhere to the following deadlines: Plaintiffs' Motion for Summary Judgment due October 7, 2019. Defendant's Combined Response and Motion for Summary Judgment due November 11, 2019. Amicus Briefs due November 25, 2019. Plaintiffs' Combined Reply/Response due December 9, 2019. Defendant's Reply due December 23, 2019. Signed by Judge Tanya S. Chutkan on 10/2/2019. (lctsc1) Modified on 10/17/2019 (DJS). (Entered: 10/02/2019)
10/02/2019		Set/Reset Deadlines: Plaintiff's Motion for Summary Judgment due by 10/7/2019. Defendant's Response and Motion for Summary Judgment due by 11/11/2019. Amicus Briefs due by 11/25/2019. Plaintiff's Reply/Response due by 12/9/2019. Defendant's Reply due by 12/23/2019. (zjd) (Entered: 10/03/2019)
10/07/2019	<u>198</u>	MOTION for Summary Judgment by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Memorandum in Support, # <u>2</u> Appendix A, # <u>3</u> Statement of Facts, # <u>4</u> Annex A, # <u>5</u> Declaration Jane W. Wise, # <u>6</u> Exhibit 1-29, # <u>7</u> Exhibit 30-44, # <u>8</u> Exhibit 45-66, # <u>9</u> Exhibit 67-81, # <u>10</u> Exhibit 82-109, # <u>11</u> Exhibit 110-125, # <u>12</u> Exhibit 126-140, # <u>13</u> Exhibit 141-148, # <u>14</u> Exhibit 149, # <u>15</u> Exhibit 150 Part 1, # <u>16</u> Exhibit 150 Part 2, # <u>17</u> Exhibit 150 Part 3, # <u>18</u> Exhibit 150 Part 4, # <u>19</u> Exhibit 150 Part 5, # <u>20</u> Exhibit 150 Part 6, # <u>21</u> Exhibit 150 Part 7, # <u>22</u> Exhibit 150 Part 8, # <u>23</u> Exhibit 150 Part 9, # <u>24</u> Exhibit 150 Part 10, # <u>25</u> Exhibit 150 Part 11, # <u>26</u> Exhibit 150 Part 12, # <u>27</u> Exhibit 150 Part 13, # <u>28</u> Exhibit 150 Part 14, # <u>29</u> Exhibit 150 Part 15, # <u>30</u> Exhibit 151 Part 1, # <u>31</u> Exhibit 151 Part 2, # <u>32</u> Exhibit 151 Part 3, # <u>33</u> Exhibit 152 Part 1, # <u>34</u> Exhibit 152 Part 2, # <u>35</u> Exhibit 152 Part 3, # <u>36</u> Exhibit 152 Part 4, # <u>37</u> Exhibit 152 Part 5, # <u>38</u> Exhibit 153 Part 1, # <u>39</u> Exhibit 153 Part 2, # <u>40</u> Exhibit 154-156, # <u>41</u> Exhibit 157, # <u>42</u> Exhibit 158, # <u>43</u> Exhibit 159, # <u>44</u> Exhibit 160, # <u>45</u> Exhibit 161, # <u>46</u> Exhibit 162, # <u>47</u> Exhibit 163, # <u>48</u> Exhibit 164-173, # <u>49</u> Declaration James S. Thomas and Exs. 1-9, # <u>50</u> Declaration James Pauley, # <u>51</u> Exhibit A-V, # <u>52</u> Exhibit W-OO, # <u>53</u> Declaration Stephanie Reiniche and Exs. 1-2, # <u>54</u> Declaration Christopher Butler, # <u>55</u> Text of Proposed Order Proposed Order and Injunction)(Fee, J.). Added MOTION for Permanent Injunction on 10/8/2019 (ztd). (Entered: 10/07/2019)
10/07/2019	<u>199</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Memorandum in Support of Plaintiffs' Second Motion for Summary Judgment and for Permanent Injunction, # <u>2</u> Statement of Facts, # <u>3</u> Exhibit 149 Part 1 to Declaration of Jane W. Wise, # <u>4</u> Exhibit 149 Part 2 to Declaration of Jane W. Wise, # <u>5</u> Exhibit 149 Part 3 to Declaration of Jane W. Wise, # <u>6</u> Exhibit 149 Part 4 to Declaration of Jane W. Wise, # <u>7</u> Exhibit 157 to Declaration of Jane W. Wise, # <u>8</u> Exhibit 158 to Declaration of Jane W. Wise, # <u>9</u> Exhibit 159 to Declaration of Jane W. Wise, # <u>10</u> Exhibit 160 to Declaration of Jane W. Wise, # <u>11</u> Exhibit 161 to Declaration of Jane W. Wise, # <u>12</u> Exhibit A to the Declaration of James Pauley, # <u>13</u> Exhibit B to the Declaration of James Pauley, # <u>14</u> Exhibit C to the Declaration of James Pauley, # <u>15</u> Exhibit D to the Declaration of James Pauley, # <u>16</u> Exhibit E to the Declaration of James Pauley, # <u>17</u> Exhibit F to the Declaration of James Pauley, # <u>18</u> Exhibit G to the Declaration of James Pauley, # <u>19</u> Exhibit H to the Declaration of James Pauley, # <u>20</u> Exhibit I to the Declaration of James Pauley, # <u>21</u> Exhibit J to the Declaration of James Pauley, # <u>22</u> Exhibit K to the Declaration of James Pauley, # <u>23</u> Exhibit L to the Declaration of James Pauley, # <u>24</u> Exhibit M to the Declaration of James Pauley, # <u>25</u> Exhibit N to the Declaration of James Pauley, # <u>26</u> Exhibit O to the Declaration of James Pauley, # <u>27</u> Exhibit P to the Declaration of James Pauley, # <u>28</u> Exhibit Q to the Declaration of James Pauley, # <u>29</u> Exhibit R to the Declaration of James Pauley, # <u>30</u> Exhibit S to the Declaration of James Pauley, # <u>31</u> T to the Declaration of James Pauley, # <u>32</u> U to the Declaration of James Pauley, # <u>33</u> V to the Declaration of James Pauley, # <u>34</u> Declaration of Stephanie Reiniche and Exs. 1-2, # <u>35</u> Text of Proposed Order)(Fee, J.) (Entered: 10/07/2019)

10/07/2019	<u>200</u>	MEMORANDUM re <u>198</u> MOTION for Summary Judgment filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC., AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC. by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Fee, J.) (Entered: 10/07/2019)
10/07/2019	<u>201</u>	REDACTED DOCUMENT- Statement of Facts to <u>198</u> MOTION for Summary Judgment by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Fee, J.) (Entered: 10/07/2019)
11/12/2019	<u>202</u>	MOTION for Summary Judgment by PUBLIC.RESOURCE.ORG, INC. (Attachments: # <u>1</u> Text of Proposed Order, # <u>2</u> Memorandum in Support)(Bridges, Andrew) (Entered: 11/13/2019)
11/13/2019	<u>203</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Memorandum in Support, # <u>2</u> Statement of Facts, # <u>3</u> STATEMENT OF DISPUTED FACTS IN OPPOSITION TO <u>198</u> PLAINTIFFS MOTION FOR SUMMARY JUDGMENT AND A PERMANENT INJUNCTION, # <u>4</u> Exhibit 42, # <u>5</u> Exhibit 46, # <u>6</u> Exhibit 47, # <u>7</u> Exhibit 55, # <u>8</u> Exhibit 56, # <u>9</u> Exhibit 57, # <u>10</u> Exhibit 59, # <u>11</u> Exhibit 61, # <u>12</u> Exhibit 62, # <u>13</u> Exhibit 63, # <u>14</u> Exhibit 64, # <u>15</u> Exhibit 65, # <u>16</u> Exhibit 66, # <u>17</u> Exhibit 67, # <u>18</u> Exhibit 68, # <u>19</u> Exhibit 69, # <u>20</u> Exhibit 70, # <u>21</u> Exhibit 71, # <u>22</u> Exhibit 72, # <u>23</u> Exhibit 73, # <u>24</u> Exhibit 74, # <u>25</u> Exhibit 75, # <u>26</u> Exhibit 76, # <u>27</u> Exhibit 77, # <u>28</u> Exhibit 78, # <u>29</u> Exhibit 79, # <u>30</u> Exhibit 80, # <u>31</u> Exhibit 81, # <u>32</u> Exhibit 95, # <u>33</u> Exhibit 97, # <u>34</u> Text of Proposed Order, # <u>35</u> Certificate of Service)(Bridges, Andrew) (Entered: 11/13/2019)
11/13/2019	<u>204</u>	LARGE ADDITIONAL ATTACHMENT(S) to <i>Public Resource's Second Motion for Summary Judgment</i> by PUBLIC.RESOURCE.ORG, INC. <u>202</u> MOTION for Summary Judgment filed by PUBLIC.RESOURCE.ORG, INC., <u>203</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Public Resources Statement of Disputed Facts, # <u>2</u> Public Resources Evidentiary Objections, # <u>3</u> Public Resources Request for Judicial Notice, # <u>4</u> Declaration Carl Malamud, # <u>5</u> Declaration Matthew Becker, # <u>6</u> Consolidated Index of Exhibits, # <u>7</u> Exhibit 1, # <u>8</u> Exhibit 2, # <u>9</u> Exhibit 3, # <u>10</u> Exhibit 4, # <u>11</u> Exhibit 5, # <u>12</u> Exhibit 6, # <u>13</u> Exhibit 7, # <u>14</u> Exhibit 8, # <u>15</u> Exhibit 9, # <u>16</u> Exhibit 10, # <u>17</u> Exhibit 11, # <u>18</u> Exhibit 12, # <u>19</u> Exhibit 13, # <u>20</u> Exhibit 14, # <u>21</u> Exhibit 15, # <u>22</u> Exhibit 16, # <u>23</u> Exhibit 17, # <u>24</u> Exhibit 18, # <u>25</u> Exhibit 19, # <u>26</u> Exhibit 20, # <u>27</u> Exhibit 21, # <u>28</u> Exhibit 22, # <u>29</u> Exhibit 23, # <u>30</u> Exhibit 24, # <u>31</u> Exhibit 25, # <u>32</u> Exhibit 26, # <u>33</u> Exhibit 27, # <u>34</u> Exhibit 28, # <u>35</u> Exhibit 29, # <u>36</u> Exhibit 30, # <u>37</u> Exhibit 31, # <u>38</u> Exhibit 32, # <u>39</u> Exhibit 33, # <u>40</u> Exhibit 34, # <u>41</u> Exhibit 35, # <u>42</u> Exhibit 36, # <u>43</u> Exhibit 37, # <u>44</u> Exhibit 38, # <u>45</u> Exhibit 39, # <u>46</u> Exhibit 40, # <u>47</u> Exhibit 41, # <u>48</u> Exhibit 42, # <u>49</u> Exhibit 43, # <u>50</u> Exhibit 44, # <u>51</u> Exhibit 45, # <u>52</u> Exhibit 46, # <u>53</u> Exhibit 47, # <u>54</u> Exhibit 48, # <u>55</u> Exhibit 49, # <u>56</u> Exhibit 50, # <u>57</u> Exhibit 51, # <u>58</u> Exhibit 52, # <u>59</u> Exhibit 53, # <u>60</u> Exhibit 54, # <u>61</u> Exhibit 55, # <u>62</u> Exhibit 56, # <u>63</u> Exhibit 57, # <u>64</u> Exhibit 58, # <u>65</u> Exhibit 59, # <u>66</u> Exhibit 60, # <u>67</u> Exhibit 61, # <u>68</u> Exhibit 62, # <u>69</u> Exhibit 63, # <u>70</u> Exhibit 64, # <u>71</u> Exhibit 65, # <u>72</u> Exhibit 66, # <u>73</u> Exhibit 67, # <u>74</u> Exhibit 68, # <u>75</u> Exhibit 69, # <u>76</u> Exhibit 70, # <u>77</u> Exhibit 71, # <u>78</u> Exhibit 72, # <u>79</u> Exhibit 73, # <u>80</u> Exhibit 74, # <u>81</u> Exhibit 75, # <u>82</u> Exhibit 76, # <u>83</u> Exhibit 77, # <u>84</u> Exhibit 78, # <u>85</u> Exhibit 79, # <u>86</u> Exhibit 80, # <u>87</u> Exhibit 81, # <u>88</u> Exhibit 82, # <u>89</u> Exhibit 83, # <u>90</u> Exhibit 84, # <u>91</u> Exhibit 85, # <u>92</u> Exhibit 86, # <u>93</u> Exhibit 87, # <u>94</u> Exhibit 88, # <u>95</u> Exhibit 89, # <u>96</u> Exhibit 90, # <u>97</u> Exhibit 91, # <u>98</u> Exhibit 92, # <u>99</u> Exhibit 93, # <u>100</u> Exhibit 94, # <u>101</u> Exhibit 95, # <u>102</u> Exhibit 96, # <u>103</u> Exhibit 97, # <u>104</u> Certificate of Service)(Bridges, Andrew) (Entered: 11/13/2019)
11/13/2019	<u>205</u>	SEALED DOCUMENT re <u>203</u> SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u>

		Memorandum in Support, # <u>2</u> Certificate of Service)(Becker, Matthew) Modified on 11/13/2019 to correct docket event/text (jf). (Entered: 11/13/2019)
11/22/2019	<u>206</u>	NOTICE of Appearance by Marcia Clare Hofmann on behalf of LAW SCHOLARS (Hofmann, Marcia) (Main Document 206 replaced on 11/22/2019) (ztd). (Entered: 11/22/2019)
11/22/2019	<u>207</u>	Unopposed MOTION for Leave to File <i>Amici Curiae Brief</i> by LAW SCHOLARS (Attachments: # <u>1</u> Amici Curiae Brief, # <u>2</u> Proposed Order)(Hofmann, Marcia) (Entered: 11/22/2019)
11/25/2019	<u>208</u>	MOTION for Extension of Time <i>to file replies and responses</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Attachments: # <u>1</u> Text of Proposed Order)(Fee, J.) Modified on 11/25/2019 (ztd). (Entered: 11/25/2019)
11/27/2019		MINUTE ORDER: Parties <u>208</u> Stipulation for Extension of Time is hereby GRANTED. Briefs by Amicus Curiae shall be filed no later than December 6, 2019 at 12pm. Plaintiffs Combined Response shall be filed no later than December 23, 2019 at 12pm. Defendants Reply shall be filed no later than January 17, 2020 at 12pm. Unopposed Motion for Leave to File Amicus Brief <u>207</u> is hereby GRANTED. Signed by Judge Tanya S. Chutkan on 11/27/19. (Loehr, Daniel) (Entered: 11/27/2019)
12/01/2019		Set/Reset Deadlines: Briefs by Amicus Curiae shall be filed by 12/6/2019 at 12:00 PM; Plaintiffs Combined Response/Reply shall be filed by 12/23/2019 at 12:00 PM; Defendants Cross-Reply shall by 1/17/2020 at 12:00 PM. (jth) (Entered: 12/01/2019)
12/06/2019	<u>209</u>	Unopposed MOTION for Leave to File <i>Second Amicus Brief of American Property Casualty Insurance Association in Support of Plaintiff's Second Motion for Summary Judgment and Permanent Injunction</i> by AMERICAN INSURANCE ASSOCIATION (Attachments: # <u>1</u> Second Amicus Brief of American Property Casualty Ins. Association ISO Plaintiff's Second Motion for Summary Judgment and Permanent Injunction)(Hollywood, Meegan) (Entered: 12/06/2019)
12/06/2019	<u>210</u>	Unopposed MOTION for Leave to File <i>Second Amicus Brief</i> by AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (Attachments: # <u>1</u> Exhibit Amicus Brief)(Hochman Rothell, Bonnie) Modified text on 12/6/2019 (ztd). (Entered: 12/06/2019)
12/06/2019	<u>211</u>	MOTION for Extension of Time to <i>File Motion for Leave to File Amicus Curiae Brief</i> by AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (Attachments: # <u>1</u> Text of Proposed Order)(Hochman Rothell, Bonnie) Modified text on 12/6/2019 (ztd). (Entered: 12/06/2019)
12/06/2019		NOTICE OF ERROR re <u>210</u> Motion for Leave to File; emailed to bhrothell@mmmlaw.com, cc'd 57 associated attorneys -- The PDF file you docketed contained errors: 1. Counsel must contact Attorney Admissions at: (202) 354-3110 regarding status. (ztd,) (Entered: 12/06/2019)
12/19/2019		MINUTE ORDER: <u>209</u> Unopposed Motion for American Property Casualty Insurance Association to file a second amicus brief in support of Plaintiffs is hereby GRANTED. <u>210</u> Unopposed Motion for the following entities to file a combined second amicus brief in support of Plaintiffs is hereby GRANTED: The American National Standards Institute, Inc. ("ANSI"), International Association of Plumbing & Mechanical Officials ("IAPMO"), National Electrical Manufacturers Association ("NEMA"), and North American Energy Standards Board ("NAESB"). <u>211</u> Motion for Leave to Extend the Deadline is hereby GRANTED. Signed by Judge Tanya S. Chutkan on 12/19/2019. (lcdl) (Entered: 12/19/2019)
12/23/2019	<u>212</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> Plaintiffs' Statement of Disputed Facts and Objections, # <u>2</u> Plaintiffs' Response to Defendant's Statement of Disputed Facts, # <u>3</u> Text of Proposed Order)(Fee, J.)

		(Entered: 12/23/2019)
12/23/2019	<u>213</u>	RESPONSE re <u>202</u> MOTION for Summary Judgment filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Attachments: # <u>1</u> Plaintiffs' Third Supplemental Statement of Material Facts, # <u>2</u> Declaration of Thomas O'Brien, # <u>3</u> Declaration of Jane W. Wise, # <u>4</u> Exhibit 174, # <u>5</u> Exhibit 175, # <u>6</u> Exhibit 176, # <u>7</u> Exhibit 177 (Part 1), # <u>8</u> Exhibit 177 (Part 2), # <u>9</u> Exhibit 177 (Part 3), # <u>10</u> Exhibit 178, # <u>11</u> Exhibit 179, # <u>12</u> Exhibit 180, # <u>13</u> Exhibit 181, # <u>14</u> Exhibit 182, # <u>15</u> Exhibit 183, # <u>16</u> Exhibit 184, # <u>17</u> Exhibit 185, # <u>18</u> Exhibit 186, # <u>19</u> Plaintiffs' Response to Defendant's Statement of Disputed Facts (Redacted), # <u>20</u> Plaintiffs' Statement of Disputed Facts and Objections, # <u>21</u> Plaintiffs' Response to Defendant's Evidentiary Objections, # <u>22</u> Plaintiffs' Opposition to Defendant's Request for Judicial Notice)(Fee, J.) (Entered: 12/23/2019)
01/17/2020	<u>214</u>	SEALED MOTION FOR LEAVE TO FILE DOCUMENT UNDER SEAL filed by PUBLIC.RESOURCE.ORG, INC. (This document is SEALED and only available to authorized persons.) (Attachments: # <u>1</u> [Sealed] Defendant's Response to Plaintiffs' Objections to Certain Evidence In Support of Defendant's Second Supplemental Statement of Material Facts, # <u>2</u> Text of Proposed Order Granting Defendant's Motion for Leave to File Under Seal Its Response to Plaintiffs' Objections to Certain Evidence In Support of Defendant's Second Supplemental Statement of Material Facts, # <u>3</u> Certificate of Service Re Sealed Response to Plaintiffs' Objections to Certain Evidence In Support of Defendant's Second Supplemental Statement of Material Facts)(Bridges, Andrew) (Entered: 01/17/2020)
01/17/2020	<u>215</u>	REPLY to opposition to motion re <u>202</u> Second Motion for Summary Judgment filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (This document is SEALE filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> [REDACTED] Defendant's Response to Plaintiffs' Objections to Certain Evidence In Support of Defendant's Second Supplemental Statement of Material Facts, # <u>2</u> Public Resource's Evidentiary Objections In Reply to Plaintiffs' Opposition to Public Resource's Second Motion for Summary Judgment and Reply In Support of Plaintiffs' Second Motion for Summary Judgment and for A Permanent Injunction [Dkt. 213], # <u>3</u> Supplemental Reply Declaration of Matthew Becker In Support of Public Resource's Second Motion for Summary Judgment, # <u>4</u> Exhibit 98, # <u>5</u> Exhibit 99, # <u>6</u> Exhibit 100, # <u>7</u> Exhibit 101, # <u>8</u> Exhibit 102, # <u>9</u> Exhibit 103, # <u>10</u> Public Resource's Statement of Disputed Facts In Opposition to [213-1] Plaintiffs' Third Supplemental Statement of Material Facts In Support of Their Second Motion for Summary Judgment and A Permanent Injunction, # <u>11</u> Public Resource's Reply In Support of Its Request for Judicial Notice [Dkt. 204-3], # <u>12</u> Public Resource's Motion to Strike Plaintiffs' Response to Public Resource's Statement of Disputed Facts [Dkt. 213-21], # <u>13</u> Text of Proposed Order Granting Public Resource's Motion to Strike Plaintiffs' Response to Public Resource's Statement of Disputed Facts [Dkt. 213-21])(Bridges, Andrew) Modified on 1/17/2020 (ztd). (Entered: 01/17/2020)
01/31/2020	<u>216</u>	RESPONSE to <i>Public Resource's Motion to Strike</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Attachments: # <u>1</u> Text of Proposed Order)(Fee, J.) Modified on 2/4/2020 (ztd). (Entered: 01/31/2020)
01/31/2020	<u>217</u>	NOTICE of Plaintiffs' Objections to Certain Evidence in Public Resource's Reply to Its Second Motion for Summary Judgment by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. re <u>215</u> Reply to opposition to Motion,,,,,, (Fee, J.) (Entered: 01/31/2020)
02/07/2020	<u>218</u>	RESPONSE TO PLAINTIFFS OBJECTIONS TO CERTAIN EVIDENCE IN PUBLIC RESOURCES REPLY TO ITS SECOND MOTION FOR SUMMARY JUDGMENT <u>217</u> filed by PUBLIC.RESOURCE.ORG, INC.. (Becker, Matthew) Modified on 2/10/2020 (ztd). (Entered: 02/07/2020)

02/07/2020	<u>219</u>	REPLY re <u>215</u> Reply to opposition to Motion,,,,, <i>PUBLIC RESOURCES REPLY IN SUPPORT OF ITS MOTION TO STRIKE PLAINTIFFS RESPONSE TO PUBLIC RESOURCES STATEMENT OF DISPUTED FACTS</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Becker, Matthew) (Entered: 02/07/2020)
06/01/2020	<u>220</u>	MOTION for Telephone Conference of <i>Plaintiffs' Request for a Telephonic Status Conference</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. (Fee, J.) Modified event on 6/2/2020 (ztd). (Entered: 06/01/2020)
06/01/2020	<u>221</u>	NOTICE <i>Exhibit A to Notice of Plaintiffs' Request for a Telephonic Status Conference</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. re <u>220</u> Notice (Other), (Fee, J.) (Entered: 06/01/2020)
06/05/2020	<u>222</u>	RESPONSE re <u>220</u> MOTION for Telephone Conference [<i>Public.Resource.Org's Response to Plaintiffs' Request for a Telephonic Status Conference; Citation of Supplemental Authorities on Pending Motions</i>] filed by PUBLIC.RESOURCE.ORG, INC.. (Attachments: # <u>1</u> Exhibit A, # <u>2</u> Exhibit B)(Bridges, Andrew) (Entered: 06/05/2020)
06/05/2020	<u>223</u>	NOTICE OF SUPPLEMENTAL AUTHORITY by PUBLIC.RESOURCE.ORG, INC. (See Docket Entry <u>222</u> to view document). (znmw) (Entered: 06/09/2020)
06/12/2020	<u>224</u>	REPLY to opposition to motion re <u>220</u> MOTION for Telephone Conference filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Fee, J.) (Entered: 06/12/2020)
07/09/2020		MINUTE ORDER: Motion for Telephone Conference <u>220</u> is hereby GRANTED in part and DENIED in part. No later than 7/17/2020 Plaintiff shall file a supplemental brief, not to exceed 15 pages, regarding the impact, if any, of Georgia v. Public.Resource.Org, Inc., 140 S. Ct. 1498 (2020), on the parties' pending summary judgment motions. No later than 7/24/2020 Defendant shall file a supplemental brief, not to exceed 15 pages, regarding the impact, if any, of Georgia v. PRO on the parties' pending summary judgment motions. No later than 7/31/2020 Plaintiff shall file a response, not to exceed 10 pages. No later than 8/7/2020 Defendant shall file a response, not to exceed 10 pages. Either party may seek leave to file more briefing only after a ruling on the current motions and anticipated supplemental briefs. Should the court seek additional briefing before then, it will so order. Signed by Judge Tanya S. Chutkan on 7/9/2020. (lcdl) (Entered: 07/09/2020)
07/09/2020		Set/Reset Deadlines: Defendant's supplemental brief due by 7/24/2020. Defendant's response due by 8/7/2020. Plaintiff's supplemental brief due by 7/17/2020. Plaintiff's response due 07/31/2020. (tb) (Entered: 07/09/2020)
07/17/2020	<u>225</u>	SUPPLEMENTAL MEMORANDUM to re <u>198</u> MOTION for Summary Judgment MOTION for Permanent Injunction, <u>202</u> MOTION for Summary Judgment <i>Pursuant to July 9, 2020 Minute Order</i> filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Fee, J.) (Entered: 07/17/2020)
07/24/2020	<u>226</u>	SUPPLEMENTAL MEMORANDUM to <i>Pursuant to July 9, 2020 Minute Order</i> filed by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 07/24/2020)
07/31/2020	<u>227</u>	SUPPLEMENTAL MEMORANDUM to re <u>226</u> <i>Response Brief Pursuant to July 9, 2020 Minute Order</i> filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Fee, J.) Modified linkage on 8/3/2020 (ztd). (Entered: 07/31/2020)

08/07/2020	<u>228</u>	SUPPLEMENTAL MEMORANDUM to re <u>226</u> Supplemental Memorandum, <u>227</u> Supplemental Memorandum, (<i>Public.Resource.Orgs Supplemental Reply Brief on the Impact of Georgia v. Public.Resource.Org, Inc.</i>) filed by PUBLIC.RESOURCE.ORG, INC.. (Bridges, Andrew) (Entered: 08/07/2020)
10/21/2020		MINUTE ORDER: The court hereby GRANTS Plaintiffs' unopposed <u>199</u> Motion to File Under Seal, Defendant's <u>203</u> Motion for Leave to File Under Seal, Plaintiffs' unopposed <u>212</u> Motion to File Under Seal, Defendant's unopposed <u>214</u> Motion for Leave to File Under Seal. It is further ORDERED that the Clerk shall file under seal the documents attached to <u>199</u> , <u>203</u> , <u>205</u> , <u>212</u> , <u>214</u> . The parties shall file redacted versions of all documents filed under seal on the public docket promptly. The parties are hereby reminded that, pursuant to the court's Local Civil Rules, they must confer with opposing counsel prior to filing a non-dispositive motion and indicate whether the motion is opposed or unopposed. See Local Civil Rule 7(m). Signed by Judge Tanya S. Chutkan on 10/21/2020. (lcfb) (Entered: 10/21/2020)
10/21/2020	<u>231</u>	SEALED DOCUMENT filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (This document is SEALED and only available to authorized persons.); (SEE DOCKET ENTRY NO. <u>199</u> TO VIEW DOCUMENTS.)(ztd) (Entered: 10/26/2020)
10/21/2020	<u>232</u>	SEALED DOCUMENT filed by PUBLIC.RESOURCE.ORG, INC.. (This document is SEALED and only available to authorized persons.); (SEE DOCKET ENTRY NO. <u>203</u> TO VIEW DOCUMENTS.)(ztd) (Entered: 10/26/2020)
10/21/2020	<u>233</u>	SEALED OPPOSITION filed by PUBLIC.RESOURCE.ORG, INC. re <u>198</u> MOTION for Summary Judgment MOTION for Permanent Injunction (ztd) (Entered: 10/26/2020)
10/21/2020	<u>234</u>	SEALED DOCUMENT filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (This document is SEALED and only available to authorized persons.)(ztd) (Entered: 10/26/2020)
10/21/2020	<u>235</u>	SEALED DOCUMENT filed by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (This document is SEALED and only available to authorized persons.)(ztd) (Entered: 10/26/2020)
10/21/2020	<u>236</u>	SEALED DOCUMENT filed by PUBLIC.RESOURCE.ORG, INC.. (This document is SEALED and only available to authorized persons.)(ztd) (Entered: 10/26/2020)
10/22/2020	<u>229</u>	NOTICE of Filing Redacted Documents by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC. re Order on Sealed Motion for Leave to File Document Under Seal,,,,,,,,,,,,, (Fee, J.) (Entered: 10/22/2020)
10/22/2020	<u>230</u>	REDACTED DOCUMENT- Exhibit 157 to the Declaration of Jane W. Wise to <u>198</u> MOTION for Summary Judgment MOTION for Permanent Injunction by AMERICAN SOCIETY FOR TESTING AND MATERIALS. (Fee, J.) (Entered: 10/22/2020)
04/27/2021	<u>237</u>	NOTICE OF SUPPLEMENTAL AUTHORITY by PUBLIC.RESOURCE.ORG, INC. (Bridges, Andrew) (Entered: 04/27/2021)
05/10/2021	<u>238</u>	RESPONSE re <u>237</u> NOTICE OF SUPPLEMENTAL AUTHORITY filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC.. (Klaus, Kelly) (Entered: 05/10/2021)
03/31/2022	<u>239</u>	MEMORANDUM AND OPINION re Plaintiffs' <u>198</u> Motion for Summary Judgment and Permanent Injunction, and Defendant's <u>202</u> Cross-Motion for Summary Judgment. Signed by Judge Tanya S. Chutkan on 03/31/2022. (Attachments: # <u>1</u> Appendix) (lcwk) (Entered: 03/31/2022)

03/31/2022	<u>240</u>	ORDER granting in part and denying in part <u>198</u> Motion for Summary Judgment; granting in part and denying in part <u>198</u> Motion for Permanent Injunction; granting in part and denying in part <u>202</u> Motion for Summary Judgment. Signed by Judge Tanya S. Chutkan on 03/31/2022. (lcwk) (Entered: 03/31/2022)
03/31/2022		MINUTE ORDER: Parties are ORDERED to submit a Joint Status Report by 4/22/2022 (1) updating the court as to Defendant's compliance with the court's <u>240</u> Order to remove certain standards and logos from its website, (2) providing a jointly proposed schedule for this case going forward to resolve Plaintiffs' claims as to the remaining standards, and (3) indicating whether the parties are interested in participating in court-sponsored mediation with the courts mediation program. The Joint Status Report shall be accompanied by a proposed order. Signed by Judge Tanya S. Chutkan on 03/31/2022. (lcwk) (Entered: 03/31/2022)
04/03/2022		Set/Reset Deadlines: Joint Status Report due by 4/22/2022. (tb) (Entered: 04/03/2022)
04/22/2022	<u>241</u>	Joint STATUS REPORT <i>Pursuant to the Courts March 31, 2022 Minute Order</i> by AMERICAN SOCIETY FOR TESTING AND MATERIALS. (Attachments: # <u>1</u> Text of Proposed Order)(Fee, J.) (Entered: 04/22/2022)
04/25/2022		RESOLVED.....NOTICE of Provisional Status re <u>241</u> Joint STATUS REPORT by AMERICAN SOCIETY FOR TESTING AND MATERIALS. (Fee, J.). Your attorney renewal has not been received. As a result, your membership with the U.S. District & Bankruptcy Courts for the District of Columbia is not in good standing, and you are not permitted to file. Pursuant to Local Civil Rule 83.9, you must immediately correct your membership status by following the appropriate instructions on this page of our website: https://www.dcd.uscourts.gov/attorney-renewal . Please be advised that the presiding judge in this case has been notified that you are currently not in good standing to file in this court. Renewal Due by 5/2/2022. (znm) Modified on 4/25/2022 (znm). (Entered: 04/25/2022)
04/25/2022		MINUTE ORDER: Upon consideration of the parties' <u>241</u> Joint Status Report, it is hereby ORDERED that the case is stayed with respect to Plaintiff ASTM's remaining standards that were not at issue in <u>198</u> Plaintiffs' Second Motion for Summary Judgment and for a Permanent Injunction ("Plaintiffs' Motion"). The case will remain stayed pending the appeal of this Court's <u>240</u> Order granting in part and denying in part Plaintiffs' Motion and granting in part and denying in part <u>202</u> Defendant's Cross-Motion for Summary Judgment. Signed by Judge Tanya S. Chutkan on 04/25/2022. (lcwk) (Entered: 04/25/2022)
04/28/2022	<u>242</u>	NOTICE OF APPEAL TO DC CIRCUIT COURT as to <u>239</u> Memorandum & Opinion, <u>240</u> Order on Motion for Summary Judgment,, Order on Motion for Permanent Injunction,,, by AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC., NATIONAL FIRE PROTECTION ASSOCIATION, INC.. Filing fee \$ 505, receipt number ADCDC-9203185. Fee Status: Fee Paid. Parties have been notified. (Fee, J.) (Entered: 04/28/2022)
04/29/2022	<u>243</u>	Transmission of the Notice of Appeal, Order Appealed (Memorandum Opinion), and Docket Sheet to US Court of Appeals. The Court of Appeals fee was paid re <u>242</u> Notice of Appeal to DC Circuit Court. (znmw) (Entered: 04/29/2022)
05/03/2022		USCA Case Number 22-7063 for <u>242</u> Notice of Appeal to DC Circuit Court, filed by NATIONAL FIRE PROTECTION ASSOCIATION, INC., AMERICAN SOCIETY FOR TESTING AND MATERIALS, AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR-CONDITIONING ENGINEERS, INC.. (znmw) (Entered: 05/03/2022)
08/05/2022		MINUTE ORDER: In light of the appeal pending before the Circuit Court, the Clerk of the Court is hereby directed to ADMINISTRATIVELY CLOSE this case. Upon resolution of the appeal (#19-7118) the parties may file a motion to return this case to the court's active docket. Any such motion shall contain a proposed order for moving forward with this case. Signed by Judge Tanya S. Chutkan on 8/5/22. (DJS) (Entered: 08/05/2022)

Case 1:13-cv-01215-TSC Document 1-1 Filed 08/06/13 Page 1 of 10

EXHIBIT A

Designation	Edition	Title	Registration Certificate Number
ASTM A36	1977ae	Standard Specification for Structural Steel	TX 464-573
ASTM A36/A36M	1997ae1	Standard Specification for Carbon Structural Steel	TX 4-873-764
ASTM A82	1979	Standard Specification for Cold-Drawn Steel Wire for Concrete Reinforcement	TX 464-573
ASTM A106/A106 M	2004b	Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service	TX 7-685-938
ASTM A184	1979	Standard Specification for Fabricated Deformed Steel Bar Mats for Concrete Reinforcement	TX 464-573
ASTM A185	1979	Standard Specification for Welded Steel Wire Fabric for Concrete Reinforcement	TX 464-573
ASTM A203/A 203M	1997	Standard Specification for Pressure Vessel Plates, Alloy Steel, Nickel	TX 4-654-921
ASTM A242	1979	Standard Specification for High-Strength Low-Alloy Structural Steel	TX 464-573
ASTM A285	1978	Standard Specification for Pressure Vessel Plates, Carbon Steel, Low- and Intermediate-Tensile Strength	TX 464-573
ASTM A307	1978e	Standard Specification for Carbon Steel Externally Threaded Standard Fasteners	TX 464-573
ASTM A325	1979	Standard Specification for High-Strength Bolts for Structural Steel Joints	TX 464-573
ASTM A333/A 333M	1994	Standard Specification for Seamless and Welded Steel Pipe for Low-Temperature Service	TX 4-083-251
ASTM A369/A 369M	1992	Standard Specification for Carbon and Ferritic Alloy Steel Forged and Bored Pipe for High-Temperature Service	TX 4-083-251
ASTM A370	1977e 2	Standard Methods and Definitions for Mechanical Testing of Steel Products	TX 434-207
ASTM A441	1979	Standard Specification for High-Strength Low-Alloy Structural Manganese Vanadium Steel	TX 464-573
ASTM A449	1978a	Standard Specification for Quenched and Tempered Steel Bolts and Studs	TX 464-573
ASTM A475	1978(1984)e 1	Standard Specification for Zinc-Coated Steel Wire Strand	TX 464-574
ASTM A490	1979	Standard Specification for Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints	TX 464-573
ASTM A496	1978	Standard Specification for Deformed Steel Wire for Concrete Reinforcement	TX 464-573
ASTM A497	1979	Standard Specification for Welded Deformed Steel Wire Fabric for Concrete Reinforcement	TX 464-573
ASTM A500	1978	Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes	TX 464-573
ASTM A501	1976	Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing	TX 464-573
ASTM A502	1976	Standard Specification for Steel Structural Rivets	TX 464-573
ASTM A514	1977	Standard Specification for High-Yield Strength, Quenched and Tempered Alloy Steel Plate, Suitable for Welding	TX 464-573
ASTM A516/A 516M	1990(1996)e1	Standard Specification for Pressure Vessel Plates, Carbon Steel, for Moderate and Lower-Temperature Service	TX 4-654-921
ASTM A522/A 522M	1995b	Standard Specification for Forged or Rolled 8 and 9 % Nickel Alloy Steel Flanges, Fittings, Valves, and Parts for Low-Temperature Service	TX 4-179-992

JA00036

Designation	Edition	Title	Registration Certificate Number
ASTM A520	1972(1985)	Standard Specification for Supplementary Requirements for Seamless and Electric-Resistance-Welded Carbon Steel Tubular Products for High-Temperature Service Conforming to ISO Recommendations For Boiler Construction	TX 1-798-078
ASTM A529	1975	Standard Specification for Structural Steel with 42,000PSI (290 Mpa) Minimum Yield Point (1/2 in. (12.7 mm) Maximum Thickness	TX 464-573
ASTM A539	1990a	Standard Specification for Electric-Resistance-Welded Coiled Steel Tubing for Gas and Fuel Oil Lines	TX 3-043-643
ASTM A570	1979	Standard Specification for Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality	TX 464-573
ASTM A572	1979	Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality	TX 464-573
ASTM A588	1979a	Standard Specification for High-Strength Low-Alloy Structural Steel with 50, 000 psi Minimum Yield Point to 4 in. Thick	TX 464-573
ASTM A611	1972(1979)	Standard Specification for Steel, Cold-rolled Sheet, Carbon, Structural	TX 464-573
ASTM A615	1979	Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement	TX 464-573
ASTM A616	1979	Standard Specification for Rail-Steel Deformed and Plain Bars for Concrete Reinforcement	TX 464-573
ASTM A617	1979	Standard Specification for Axle-Steel Deformed and Plain Bars for Concrete Reinforcement	TX 464-573
ASTM A618	1974	Standard Specification for Hot-Formed Welded and Seamless High-Strength Low-Alloy Structural Tubing	TX 464-573
ASTM A633	1979a	Standard Specification for Normalized High-Strength Low Alloy Structural Steel	TX 464-573
ASTM B16	1992	Standard Specification for Free-Cutting Brass Rod, Bar and Shapes for Use in Screw Machines	TX 3-614-178
ASTM B21	1983b	Standard Specification for Naval Brass Rod, Bar, and Shapes	TX 1-228-879
ASTM B21	1996	Standard Specification for Naval Brass Rod, Bar, and Shapes	TX 4-497-885
ASTM B42	1996	Standard Specification for Seamless Copper Pipe, Standard Sizes	TX 4-497-885
ASTM B68	1995	Standard Specification for Seamless Copper Tube, Bright Annealed	TX 4-243-005
ASTM B75	1997	Standard Specification for Seamless Copper Tube	TX 4-737-834
ASTM B85	1984	Standard Specification for Aluminum-Alloy Die Castings	TX 1-689-871
ASTM B88	1996	Standard Specification for Seamless Copper Water Tube	TX 4-497-885
ASTM B96	1993	Standard Specification for Copper-Silicon Alloy Plate, Sheet, Strip, and Rolled Bar for General Purposes and Pressure Vessels	TX 3-883-920
ASTM B111	1995	Standard Specification for Copper and Copper-Alloy Seamless Condenser Tubes and Ferrule Stock	TX 4-243-005
ASTM B122/B 122M	1995	Standard Specification for Copper-Nickel-Tin Alloy, Copper-Nickel-Zinc Alloy (Nickel Silver), and Copper-Nickel Alloy Plate, Sheet, Strip and Rolled Bar	TX 4-243-005
ASTM B124	1996	Standard Specification for Copper and Copper-Alloy Forging Rod, Bar, and Shapes	TX 4-497-885

JA00037

Designation	Edition	Title	Registration Certificate Number
ASTM B152	1997a	Standard Specification for Copper Sheet, Strip, Plate, and Rolled Bar	TX 4-737-834
ASTM B193	1987	Standard Test Method for Resistivity of Electrical Conductor Materials	TX 2-348-166
ASTM B209	1996	Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate	TX 4-475-108
ASTM B224	1980e 1	Standard Classification of Coppers	TX 1-228-879
ASTM B280	1997	Standard Specification for Seamless Copper Tube for Air Conditioning and Refrigeration Field Service	TX 4-497-885
ASTM B283	1996	Standard Specification for Copper and Copper-Alloy Die Forgings (Hot-Pressed)	TX 4-497-885
ASTM B315	1993	Standard Specification for Seamless Copper Alloy Pipe and Tube	TX 4-243-005
ASTM B557	1984	Standard Methods of Tension Testing Wrought and Cast Aluminum and Magnesium-Alloy Products	TX 1-689-871
ASTM B580	1979	Standard Specification for Anodized Oxide Coatings on Aluminum	TX 534-160
ASTM B694	1986	Standard Specification for Copper, Copper Alloy, and Copper-Clad Stainless Steel Sheet and Strip for Electrical Cable Shielding	TX 2-110-040
ASTM B858	1995	Standard Test Method for Determination of Susceptibility to Stress Corrosion Cracking in Copper Alloys Using an Ammonia Vapor Test	TX 4-243-005
ASTM C5	1979(1997)	Standard Specification for Quicklime for Structural Purposes	TX 4-787-636
ASTM C150	1999a	Standard Specification for Portland Cement	TX 7-685-927
ASTM C177	1997	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded Hot-Plate Apparatus	TX 4-811-646
ASTM C236	1989(1993)e 1	Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box	TX 3-972-350
ASTM C330	1999	Standard Specification for Lightweight Aggregates for Structural Concrete	TX 5-008-019
ASTM C509	1984	Standard Specification for Cellular Elastomeric Preformed Gasket and Sealing Material	TX 2-210-202
ASTM C516	1980(1996)e 1	Standard Specification for Vermiculite Loose Fill Thermal Insulation	TX 4-571-119
ASTM C518	1991	Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus	TX 3-278-409
ASTM C549	1981(1995)e 1	Standard Specification for Perlite Loose Fill Insulation	TX 4-584-449
ASTM C564	1970(1982)	Standard Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings	TX 696-452
ASTM C720	1989(1994)e 1	Standard Specification for Spray Applied Fibrous Insulation for Elevated Temperature	TX 4-391-188
ASTM D86	2007	Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure	TX 7-685-941
ASTM D129	1995	Standard Test Method for Sulfur in Petroleum Products (General Bomb Method)	TX 4-862-934
ASTM D257	1991	Standard Test Method for DC Resistance of Conductance of Insulating Materials	TX 3-506-922
ASTM D287	1992(1995)	Standard Test Method for API Gravity of Crude Petroleum and Petroleum Products (Hydrometer Method)	TX 4-623-459
ASTM D323	1958(1968)	Standard Test Method for Vapor Pressure of Petroleum Products (Reid Method)	
ASTM D388	1998a	Standard Classification of Coals by Rank	TX 4-951-524
ASTM D396	1998	Standard Specification for Fuel Oils	TX 4-862-934
ASTM D413	1982(1993)e 1	Standard Test Method for Rubber Property--Adhesion to Flexible Substrate	TX 4-320-184
ASTM D512	1989(1999)	Standard Test Methods for Chloride Ion in Water	TX 5-785-473

JA00038

Designation	Edition	Title	Registration Certificate Number
ASTM D611	1982(1998)	Standard Test Methods for Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents	TX 4-862-934
ASTM D665	1998e 1	Standard Test Method for Rust-Preventing Characteristics of Inhibited Mineral Oil in the Presence of Water	TX 4-862-934
ASTM D814	1995	Standard Test Method for Rubber Property--Vapor Transmission of Volatile Liquids	TX 4-320-184
ASTM D975	1998b	Standard Specification for Diesel Fuel Oils	TX 4-862-934
ASTM D975	2007	Standard Specification for Diesel Fuel Oils	TX 7-685-915
ASTM D976	1991(1995)e 1	Standard Test Methods for Calculated Cetane Index of Distillate Fuels	TX 4-623-459
ASTM D1072	1990(1994)e 1	Standard Test Method for Total Sulfur in Fuel Gases	TX 4-768-933
ASTM D1193	1977(1983)	Standard Specification for Reagent Water	TX 1-374-250
ASTM D1217	1993(1998)	Standard Test Method for Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer	TX 4-862-934
ASTM D1246	1995(1999)	Standard Test Method for Bromide Ion in Water	TX 5-345-022
ASTM D1253	1986(1996)	Standard Test Method for Residual Chlorine in Water	TX 5-345-022
ASTM D1266	1998	Standard Test Method for Sulfur in Petroleum Products (Lamp Method)	TX 4-862-934
ASTM D1298	1999	Standard Test Method for Density, Relative Density (Specific Gravity), or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method	TX 5-071-596
ASTM D1335	1967(1972)	Standard Method of Test for Tuft Bind of Pile Floor Coverings	TX 626-132
ASTM D1412	1993(1997)	Standard Test Method for Equilibrium Moisture of Coal at 96 to 97 Percent Relative Humidity and 30 Degrees Celsius	TX 4-768-933
ASTM D1415	1988(1994)	Standard Practice for Rubber Property- International Hardness	TX 4-320-184
ASTM D1480	1993(1997)	Standard Test Method for Density and Relative Density (Specific Gravity) of Viscous Materials by Bingham Pycnometer	TX 4-623-459
ASTM D1481	1993(1997)	Standard Test Method for Density and Relative Density (Specific Gravity) of Viscous Materials by Lipkin Bicapillary Pycnometer	TX 4-623-459
ASTM D1518	1985(1998)e1	Standard Test Method for Thermal Transmittance of Textile Materials	TX 2-469-775
ASTM D1535	1989	Standard Test Method for Specifying Color by the Munsell System	TX 4-898-491
ASTM D1552	1995	Standard Test Method for Sulfur in Petroleum Products (High-Temperature Method)	TX 4-623-459
ASTM D1687	1992(1996)	Standard Test Methods for Chromium in Water	TX 5-345-022
ASTM D1688	1995	Standard Test Methods for Copper in Water	TX 5-345-022
ASTM D1785	1986	Standard Specification for Poly (Vinyl Chloride)(PVC) Plastic Pipe, Schedules 40, 80, and 120	TX 2-284-674
ASTM D1835	1997	Standard Specification for Liquefied Petroleum (LP) Gases	TX 4-623-459
ASTM D1890	1996	Standard Test Method for Beta Particle Radioactivity of Water	TX 5-369-432
ASTM D1943	1996	Standard Test Method for Alpha Particle Radioactivity of Water	TX 5-369-432
ASTM D1945	1996	Standard Test Method for Analysis of Natural Gas By Gas Chromatography	TX 4-768-933
ASTM D1946	1990(1994)e 1	Standard Practice for Analysis of Reformed Gas by Gas Chromatography	TX 4-768-933
ASTM D2013	1986(1994)	Standard Method of Preparing Coal Samples for Analysis	TX 4-768-933

JA00039

Designation	Edition	Title	Registration Certificate Number
ASTM D2015	1996	Standard Test Method for Gross Calorific Value of Coal and Coke by the Adiabatic Bomb Calorimeter	TX 4-768-933
ASTM D2036	1998	Standard Test Method for Cyanides in Water	TX 5-369-432
ASTM D2163	1991(1996)	Standard Test Method for Analysis of Liquefied Petroleum (LP) Gases and Propane Concentrates by Gas Chromatography	TX 4-623-459
ASTM D2216	1998	Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass	TX 5-929-602
ASTM D2234	1998	Standard Practice for Collection of a Gross Sample of Coal	TX 4-951-524
ASTM D2247	1968(1973)	Standard Method for Testing Coated Metal Specimens at 100 Percent Relative Humidity	TX 648-346
ASTM D2460	1997	Standard Test Method for Alpha-Particle-Emitting Isotopes of Radium in Water	TX 5-369-432
ASTM D2502	1992(1996)	Standard Test Method for Estimation of Molecular Weight (Relative Molecular Mass) of Petroleum Oils from Viscosity Measurements	TX 4-623-459
ASTM D2503	1992(1997)	Standard Test Method for Relative Molecular Mass (Molecular Weight) of Hydrocarbons by Thermoelectric Measurement of Vapor Pressure	TX 4-623-459
ASTM D2505	1988(1998)	Standard Test Method for Ethylene, Other Hydrocarbons, and Carbon Dioxide in High-Purity Ethylene by Gas Chromatography	TX 4-862-934
ASTM D2597	1994(1999)	Standard Test Method for Analysis of Demethanized Hydrocarbon Liquid Mixtures Containing Nitrogen and Carbon Dioxide by Gas Chromatography	TX 5-071-596
ASTM D2622	1998	Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-ray Fluorescence Spectrometry	TX 5-071-596
ASTM D2724	1987(1995)	Standard Test Methods for Bonded, Fused, and Laminated Apparel Fabrics	TX 5-435-937
ASTM D2777	1998	Standard Practice for Determination of Precision and Bias of Applicable Test Methods of Committee D-19 on Water	TX 5-345-022
ASTM D2879	1997	Standard Test Method for Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope	TX 5-345-022
ASTM D2908	1974	Standard Recommended Practice for Measuring Volatile Organic Matter in Water by Aqueous-Injection Gas Chromatography	TX 534-158
ASTM D2986	1995a(1999)	Standard Practice for Evaluation of Air, Assay Media by the Monodisperse DOP (Diocetyl Phthalate) Smoke Test	TX 5-202-199
ASTM D3120	1996	Standard Test Method for Trace Quantities of Sulfur in Light Liquid Petroleum Hydrocarbons by Oxidative Microcoulometry	TX 4-623-459
ASTM D3173	1987(1996)	Standard Test Method for Moisture in the Analysis Sample of Coal and Coke	TX 4-951-524
ASTM D3176	1989(1997)	Standard Practice for Ultimate Analysis of Coal and Coke	TX 4-951-524
ASTM D3177	1989(1997)	Standard Test Methods for Total Sulfur in the Analysis Sample of Coal and Coke	TX 4-951-524
ASTM D3178	1989(1997)	Standard Test Methods for Carbon and Hydrogen in the Analysis Sample of Coal and Coke	TX 4-951-524
ASTM D3236	1988(1999)	Standard Test Method for Apparent Viscosity of Hot Metal Adhesives and Coating Materials	TX 5-071-596
ASTM D3246	1996	Standard Test Method for Sulfur in Petroleum Gas by Oxidative Microcoulometry	TX 5-071-596
ASTM D3286	1996	Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter	TX 4-951-524

JA00040

Designation	Edition	Title	Registration Certificate Number
ASTM D3371	1995	Standard Test Method for Nitriles in Aqueous Solution by Gas-Liquid Chromatography	TX 4-257-410
ASTM D3454	1997	Standard Test Method for Radium-226 in Water	TX 5-369-432
ASTM D3588	1998	Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels	TX 4-951-524
ASTM D3697	1992(1996)	Standard Test Method for Antimony in Water	TX 4-257-533
ASTM D4057	1995e 1	Standard Practice for Manual Sampling of Petroleum and Petroleum Products	TX 4-622-434
ASTM D4084	1994	Standard Test Method for Analysis of Hydrogen Sulfide in Gaseous Fuels (Lead Acetate Reaction Rate Method)	TX 4-768-933
ASTM D4177	1995	Standard Practice for Automatic Sampling of Petroleum and Petroleum Products	TX 4-622-434
ASTM D4239	1997e 1	Standard Test Methods for Sulfur in the Analysis Sample of Coal and Coke Using High Temperature Tube Furnace Combustion Methods	TX 4-951-524
ASTM D4268	1993	Standard Test Method for Testing Fiber Ropes	TX 5-435-937
ASTM D4294	1998	Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry	TX 4-898-490
ASTM D4329	1999	Standard Practice for Fluorescent UV Exposure of Plastics	TX 5-996-821
ASTM D4420	1994	Standard Test Method for Determination of Aromatics in Finished Gasoline by Gas Chromatography	TX 4-622-434
ASTM D4809	1995	Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)	TX 4-622-434
ASTM D4891	1989(1994)E 1	Standard Test Method for Heating Value of Gases in Natural Gas Range by Stoichiometric Combustion	TX 4-951-524
ASTM D4986	1998	Standard Test Method for Horizontal Burning Characteristics of Cellular Polymeric Materials	TX 5-570-786
ASTM D5257	1997	Standard Test Method for Dissolved Hexavalent Chromium in Water by Ion Chromatography	TX 5-345-022
ASTM D5373	1993(1997)	Standard Methods for Instrumental Determination of Carbon, Hydrogen, and Nitrogen in Laboratory Samples of Coal and Coke	TX 4-951-524
ASTM D5489	1996a	Standard Guide for Care Symbols for Care Instructions Textile Products	TX 4-394-571
ASTM D5673	1996	Standard Test Method for Elements in Water by Inductively Coupled Plasma- Mass Spectrometry	TX 5-369-432
ASTM D5865	1998a	Standard Test Method for Gross Calorific Value of Coal and Coke	TX 4-951-524
ASTM D6216	1998	Standard Practice for Opacity Monitor Manufacturers to Certify Conformance with Design and Performance Specifications	TX 5-202-199
ASTM D6228	1998	Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Flame Photometric Detection	TX 4-951-524
ASTM D6420	1999	Standard Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography-Mass Spectrometry	TX 5-202-199
ASTM D6503	1999	Standard Test Method for Enterococci in Water Using Enterolert	TX 5-369-432
ASTM E11	1995	Standard Specification for Wire Cloth and Sieves for Testing Purposes	TX 5-135-299
ASTM E23	1982	Standard Test Methods for Notched Bar Impact Testing of Metallic Materials	TX 1-187-015

JA00041

Designation	Edition	Title	Registration Certificate Number
ASTM E29	1993a	Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications	TX 4-143-803
ASTM E29	1990	Standard Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications	TX 3-460-670
ASTM E72	1980	Standard Methods of Conducting Strength Tests of Panels for Building Construction	TX 3-972-350
ASTM E96	1995	Standard Test Methods for Water Vapor Transmission of Materials	TX 4-391-188
ASTM E145	1994e 1	Standard Specification for Gravity-Convection and Forced- Ventilation Ovens	TX 4-952-491
ASTM E154	1968(1979)e 1	Standard Methods of Testing Materials for Use as Vapor Barriers Under Concrete Slabs and as Ground Cover in Crawl Spaces	TX 2-210-197
ASTM E168	1988	Standard Practices for General Techniques of Infrared Quantitative Analysis	TX 3-211-547
ASTM E169	1987	Standard Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis	TX 3-211-547
ASTM E185	1982	Standard Practice for Conducting Surveillance Tests for Light-Water Cooled Nuclear Power Reactor Vessels	TX 1-210-036
ASTM E260	1996	Standard Practice for Packed Column Gas Chromatography	TX 5-202-197
ASTM E283	1991(1999)	Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen	TX 5-202-198
ASTM E408	1971	Standard Methods of Test for Total Normal Emittance of Surfaces Using Inspection-Meter Techniques	TX 565-130
ASTM E424	1971	Standard Methods of Test for Solar Energy Transmittance and Reflectance (Terrestrial) of Sheet Materials	TX 565-130
ASTM E606	1980	Standard Recommended Practice for Constant-Amplitude Low-Cycle Fatigue Testing	TX 1-187-015
ASTM E681	1985	Standard Test Method for Concentration Limits of Flammability of Chemicals	TX 2-794-050
ASTM E695	1979(1997)e 1	Standard Method of Measuring Relative Resistance of Wall, Floor, and Roof Construction to Impact Loading	TX 5-641-809
ASTM E711	1987(1992)	Standard Test Method for Gross Calorific Value of Refuse-Derived Fuel by the Bomb Calorimeter	TX 3-689-742
ASTM E773	1997	Standard Test Method for Accelerated Weathering of Sealed Insulating Glass Units	TX 5-202-198
ASTM E774	1997	Standard Specifications for the Classification of the Durability of Sealed Insulating Glass Units	TX 5-202-198
ASTM E775	1987(1992)	Standard Test Methods for Total Sulfur in the Analysis Sample of Refuse-Derived Fuel	TX 3-689-742
ASTM E776	1987(1992)	Standard Test Method for Forms of Chlorine in Refuse-Derived Fuel	TX 3-689-742
ASTM E885	1988	Standard Test Methods for Analyses of Metals in Refuse-Derived Fuel by Atomic Absorption Spectroscopy	TX 3-689-742
ASTM E1337	1990(1996)	Standard Test Method for Determining Longitudinal Peak Braking Coefficient of Paved Surfaces Using a Standard Reference Test Tire	TX 5-369-425

JA00042

Designation	Edition	Title	Registration Certificate Number
ASTM E1625	1994	Standard Test Method for Determining Biodegradability of Organic Chemicals in Semi-Continuous Activated Sludge (SCAS)	TX 4-780-430
ASTM E1719	1997	Standard Test Method for Vapor Pressure of Liquids by Ebulliometry	TX 4-755-309
ASTM F462	1979(1999)	Standard Consumer Safety Specification for Slip-Resistant Bathing Facilities	TX 5-641-808
ASTM F478	1992(1999)	Standard Specification for In-Service Care of Insulating Line Hose and Covers	TX 5-139-661
ASTM F631	1980(1985)	Standard Method for Testing Full Scale Advancing Spill Removal Devices	TX 4-780-430
ASTM F631	1993	Standard Guide for Collecting Skimmer Performance Data in Controlled Environments	TX 4-780-430
ASTM F682	1982a(1988)	Standard Specification for Wrought Carbon Steel Sleeve-Type Pipe Couplings	TX 3-278-410
ASTM F715	1981(1986)	Standard Methods of Testing Spill Control Barrier Membrane Materials	TX 3-689-742
ASTM F715	1995	Standard Test Methods for Coated Fabrics Used for Oil Spill Control and Storage	TX 4-780-430
ASTM F722	1982(1988)	Standard Specification for Welded Joints for Shipboard Piping Systems	TX 3-278-410
ASTM F808	1983(1988)e 1	Standard Guide for Collecting Skimmer Performance Data in Uncontrolled Environments	TX 3-689-742
ASTM F1003	1986(1992)	Standard Specification for Searchlights on Motor Lifeboats	TX 4-862-629
ASTM F1006	1986(1997)	Standard Specification for Entrainment Separators for Use in Marine Piping Applications	TX 4-862-629
ASTM F1007	1986(1996)e 1	Standard Specification for Pipe-Line Expansion Joints of the Packed Slip Type for Marine Application	TX 4-862-629
ASTM F1014	1992	Standard Specification for Flashlights on Vessels	TX 4-862-629
ASTM F1020	1986(1996)e 1	Standard Specification for Line-Blind Valves for Marine Applications	TX 4-862-629
ASTM F1120	1987(1998)	Standard Specification for Circular Metallic Bellows Type Expansion Joints for Piping Applications	TX 4-862-629
ASTM F1121	1987(1998)	Standard Specification for International Shore Connections for Marine Fire Applications	TX 4-862-629
ASTM F1122	1987(1998)	Standard Specification for Quick Disconnect Couplings	TX 4-862-629
ASTM F1123	1987(1998)	Standard Specification for Non-Metallic Expansion Joints	TX 4-862-629
ASTM F1139	1988(1998)	Standard Specification for Steam Traps and Drains	TX 4-862-629
ASTM F1155	1998	Standard Practice for Selection and Application of Piping System Materials	TX 4-862-629
ASTM F1172	1988(1998)	Standard Specification for Fuel Oil Meters of the Volumetric Positive Displacement Type	TX 4-862-629
ASTM F1173	1995	Standard Specification for Thermosetting Resin Fiberglass Pipe and Fittings to be Used for Marine Applications	TX 4-862-629
ASTM F1196	1994	Standard Specification for Sliding Watertight Door Assemblies	TX 4-862-629
ASTM F1197	1989(1994)e 1	Standard Specification for Sliding Watertight Door Control Systems	TX 4-862-629
ASTM F1199	1988(1998)	Standard Specification for Cast (All Temperatures and Pressures) and Welded Pipe Line Strainers (150 psig and 150 Degrees F Maximum)	TX 4-862-629
ASTM F1200	1988(1998)	Standard Specification for Fabricated (Welded) Pipe Line Strainers (Above 150 psig and 150°F)	TX 4-862-629
ASTM F1201	1988(1998)	Standard Specification for Fluid Conditioner Fittings in Piping Applications Above Zero Degrees F	TX 4-862-629

JA00043

Designation	Edition	Title	Registration Certificate Number
ASTM F1271	1990(1995)e 1	Standard Specification for Impact Attenuation of Surfacing Materials Within the Use Zone of Playground Equipment	TX 4-862-629
ASTM F1273	1991(1996)e 1	Standard Specification for Tank Vent Flame Arresters	TX 4-862-629
ASTM F1321	1992	Standard Guide for Conducting a Stability Test (Lightweight Survey and Inclining Experiment) to Determine Light Ship Displacement and Centers of Gravity of a Vessel	TX 4-862-629
ASTM F1323	1998	Standard Specification for Shipboard Incinerators	TX 4-862-629
ASTM F1471	1993	Standard Test Method for Air Cleaning Performance of a High-Efficiency Particulate Air-Filter System	TX 3-936-504
ASTM F1546/F 1546M	1996	Standard Specification for Fire Hose Nozzles	TX 4-862-629
ASTM F1548	1994	Standard Specification for the Performance of Fittings for Use with Gasketed Mechanical Couplings Used in Piping Applications	TX 4-862-629
ASTM F1951	1999	Standard Specification for Determination of Accessibility of Surface Systems Under and Around Playground Equipment	TX 5-641-808
ASTM G21	1990	Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi	TX 4-143-803
ASTM G151	1997	Standard Practice for Exposing Nonmetallic Materials in Accelerated Test Devices that Use Laboratory Light Sources	TX 4-755-309
ASTM G154	2000a	Standard Practice for Operating Fluorescent Light Apparatus for UV Exposure of Nonmetallic Materials	TX 4-952-491
ASTM F747	1997	Standard Terminology Relating to Amusement Rides and Devices	TX 5-641-808
ASTM F1193	2006	Standard Practice for Quality, Manufacture, and Construction of Amusement Rides and Devices	TX 7-685-943
ASTM F1950	1999	Standard Specification for Physical Information to be Transferred With Used Amusement Rides and Devices	TX 5-641-808
ASTM F1957	1999	Standard Test Method for Composite Foam Hardness Durometer Hardness	TX 5-641-808

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

AMERICAN EDUCATIONAL .
RESEARCH ASSOCIATION, INC., .
et al., .
Plaintiffs, . CA No. 13-1215 (TSC)
CA No. 14-0857
v. .
Washington, D.C.
PUBLIC.RESOURCE.ORG, INC., . Wednesday, November 4, 2015
10:35 a.m.
Defendant. .
.

TRANSCRIPT OF STATUS HEARING
BEFORE THE HONORABLE TANYA S. CHUTKAN
UNITED STATES DISTRICT JUDGE

APPEARANCES

For Plaintiffs 14-0857

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Proceedings reported by stenotype shorthand.
Transcript produced by computer-aided transcription.

P R O C E E D I N G S

THE DEPUTY CLERK: Your Honor, these are civil cases 14-857 and 13-1215, American Educational Research Association Incorporated, et al., versus Public.Resource.Org, Inc. Counsel, please come forward and state your appearances for the record.

MR. HUDIS: Your Honor, in the 14-857 case, AERA, Jonathan Hudis for plaintiffs, and I'm here with my colleague, Kathleen Cooney-Porter, also for plaintiffs.

THE COURT: Good morning.

MR. BECKER: Good morning, Your Honor. Matthew Becker for the defendant, and I'm here with David Halperin, also for the defendant.

THE COURT: Good morning. Thank you.

All right. I've had a chance to review the -- oh.

MR. KLAUS: I'm sorry, Your Honor. Should we introduce ourselves?

THE COURT: Yes, please.

MR. KLAUS: In the 13-1215 case, I'm Kelly Klaus from Munger, Tolles & Olson, and I'm here for the National Fire Protection Association.

THE COURT: Good morning, Mr. Klaus.

MR. FEE: Good morning, Your Honor. I'm Kevin Fee on behalf of ASTM, and I'm joined by Jordana Rubel, who is standing right behind me.

THE COURT: Hello. Good morning.

1 MR. CUNNINGHAM: Good morning, Your Honor.

2 Blake Cunningham on behalf of ASHRAE.

3 THE COURT: All right, everyone. Sorry about that.

4 Okay. So I've reviewed the joint report on proposed
5 summary briefing schedule, and I have some thoughts. It appears
6 that -- well, if you have anything to add beyond what's in the
7 status report as to why you think you're entitled to the
8 schedule, but I kind of have my notion. I can hear you.

9 Yes, Mr. Hudis.

10 MR. HUDIS: So, Your Honor, on behalf of the
11 plaintiffs in the 14-857 case, we filed the case nine months
12 after the ASTM case. We slogged through discovery, and we
13 finished before they did. We had our final pretrial -- sorry --
14 post end-of-discovery conference before the other case. So
15 we're ready to go.

16 We believe that our case is more streamlined, has a lot
17 less issues. We believe that we should not have to sit on our
18 hands for a few months as Public Resource would like. We are
19 agreeable to any staggered schedule Your Honor will order, so
20 long as we don't have to sit on our hands, and then have a
21 briefing schedule later.

22 We also don't want to risk that Your Honor is going to
23 decide these cases separately. We've fought like the dickens
24 so that we could have all these summary judgment motions before
25 Your Honor and we could decide all of these issues at one time.

1 THE COURT: I agree.

2 MR. HUDIS: And that's what we have to say.

3 THE COURT: Okay.

4 MR. BECKER: Good morning, Your Honor.

5 THE COURT: Good morning.

6 MR. BECKER: Matthew Becker for the defendant.

7 It appears that Public Resource and the AERA plaintiffs can
8 agree that we should have a staggered schedule, and the AERA
9 plaintiffs have said that they would agree to any staggered
10 schedule.

11 If we could have a staggered schedule that would allow for
12 Public Resource to have adequate time to respond and fully brief
13 for motions for both cases, as well as, if possible, according
14 time for counsel to visit family on the holidays, that would be
15 greatly appreciated, Your Honor.

16 THE COURT: All right. I've reviewed both parties'
17 proposals, and I have come up with a schedule of my own that is
18 in between the two.

19 One of the things that I have started to prefer is, I don't
20 have a love of simultaneous briefing. I find things can get
21 confusing. I generally prefer sequential briefing. I do think
22 that the proposal that plaintiffs have put forward is a two and
23 a half month long briefing schedule, which some of these
24 deadlines, by my calculation, provide for even less time than
25 the local rules, and I think given the holidays, it's too tight.

1 So I'm not going to issue that schedule.

2 On the other hand, defendants' proposed schedule is four
3 months long, also contemplates simultaneous briefing, which I
4 think is also a little long. So I'm rejecting both suggested
5 schedules. I don't think that plaintiffs have a particularly
6 compelling ground to compress a schedule in this case,
7 especially in light of the defendant's assertion that they have
8 taken down documents from the website that plaintiffs were
9 complaining of having up. I see you standing up.

10 MR. FEE: Your Honor, may I say something?

11 THE COURT: Yes, absolutely.

12 MR. FEE: They did the other way, of course, to make
13 the point that they took down the standard that was the issue in
14 the AERA case, but that is not true for the ATSM case. Part of
15 the reason we're so anxious to get this thing teed up is, as
16 recently as the past month they've posted 14 or 15 new --

17 THE COURT: I was going to ask you to articulate your
18 prejudice.

19 MR. FEE: So that's our harm. They're delaying this
20 forever and putting up more of our materials at the same time.

21 THE COURT: All right. Let me hear from defendants.
22 I did want to hear from you on the prejudice issue regarding the
23 delay, and if that's the case, you can't ask for a longer
24 schedule which gives you longer to allegedly violate their
25 copyright.

1 MR. BECKER: Your Honor, most of the standards at
2 issue in this case have been posted years prior to when the case
3 was ever filed, and it appears that the plaintiffs in the ASTM
4 case had contemplated litigation for years prior to filing this
5 case. There isn't any reason that it seems that they need to
6 have a resolution of the case immediately whereby an extension
7 of one month would --

8 THE COURT: But they filed a case. They filed a case,
9 and they're alleging harm, and the harm they're alleging is
10 having those documents up on a website. To the extent that the
11 longer this case goes and the longer those documents are up
12 there, the greater the harm that they allege they're suffering.
13 I mean, that is prejudice, as prejudice can be articulated.

14 Now, in the joint status report, you said that you had
15 taken down some of the documents?

16 MR. BECKER: Yes. In agreement with the AERA
17 plaintiffs, that standard had been taken --

18 THE COURT: What about the other ones?

19 MR. BECKER: No. There hadn't been any agreement with
20 the plaintiffs in the --

21 THE COURT: Why can't you take them down during the
22 time for the briefing schedule?

23 MR. BECKER: We have not contemplated that, Your Honor.

24 THE COURT: Can you contemplate it now?

25 MR. BECKER: I could contemplate it now, Your Honor.

1 As Your Honor is probably aware of the background of this case,
2 these are documents that have been incorporated by reference
3 into the law and are therefore themselves --

4 THE COURT: That's the whole ball of wax. I mean,
5 that's what the case is about, right? We're going to decide
6 whether those documents have fallen into the public domain or
7 whatever the argument is. But right now, the plaintiff's
8 argument is that the longer those documents are up there, the
9 greater the harm they are suffering, and if you've agreed to
10 pull some pending briefing, why can't you pull the others?
11 What's the problem?

12 MR. BECKER: It would be possible to pull the other
13 standards if that is what Your Honor believes is necessary in
14 order to have a longer briefing schedule.

15 THE COURT: I do. All right. Okay.

16 MR. HUDIS: Your Honor, just so the record is clear,
17 the AERA plaintiffs, we agreed with Public Resource at the very
18 beginning of the case because we had asked on whom we would
19 serve a preliminary injunction motion. So Mr. Becker's boss and
20 lead counsel, Andrew Bridges, called me and said, we want a full
21 hearing on the merits; we don't want a partial record based upon
22 a preliminary injunction motion.

23 So upon his and his client's agreement to take our one
24 standard down during the pendency of the case, we did not file a
25 preliminary injunction motion. So I just want to make sure the

1 Court is not confused.

2 In the ASTM case, as of right now, all of their standards
3 are still up on Public Resource's website, and as I understand
4 from speaking with counsel, they're still being added. Our only
5 concern, as I said before, is that we have a staggered schedule
6 and a joint hearing before Your Honor.

7 THE COURT: Okay. I can tell you right now we're
8 going to have a joint hearing, and I can tell you right now that
9 the schedule I'm proposing is only -- it's a 3.5 month briefing
10 schedule. Plaintiffs have proposed a 2.5 month briefing
11 schedule, defendants have proposed a four-month briefing
12 schedule. So this is not a huge amount of time difference.

13 All right. I do find that defendants are going to need
14 some more time, the holidays and family obligations, plus they
15 just have fewer lawyers to respond. So I do think that Public
16 Resource makes a strong case for giving it some more time. So
17 I'm going to do that.

18 So my proposal is, it adapts the parties' six-briefs,
19 simultaneous cross-motions schedule, but it changes it to four
20 sequential briefs in each case. So rather than describe it,
21 I've done a little chart, and I'm going to have my clerk give it
22 to you so you all can see the dates that we're talking about.
23 Look at it and let me know if this is doable.

24 (Counsel viewing document.)

25 MR. KLAUS: I think I get from the time schedule is

1 the idea that one side would move first, the other side would
2 respond, and I suppose the question is who's on the blank there
3 on blank's motion for summary judgment. Is it our motion and
4 their consolidated motion and opposition, or reverse?

5 THE COURT: That's a good question.

6 MR. KLAUS: If I'm understanding it correctly,
7 Your Honor, it's like a cross-appeal where there are four
8 briefs --

9 THE COURT: Right.

10 MR. KLAUS: -- which I think makes, quite frankly,
11 reducing the number of briefs that Your Honor is going to be
12 inundated with make a tremendous amount of --

13 THE COURT: It does to me.

14 (Laughter)

15 MR. KLAUS: But I think that notwithstanding the -- as
16 you said, there is a ball of wax. It's a fairly defined ball of
17 wax, and so I think you'll see a lot of the same arguments and
18 cases more than once in the briefing.

19 THE COURT: I think we would have plaintiffs' motion
20 first since that sort of seems to make logical sense to me.

21 MR. KLAUS: Yes.

22 THE COURT: Now, why don't we start filling in the
23 blanks here. So plaintiffs' motion for summary judgment in the
24 ASTM case, when would you want that to be due?

25 MR. KLAUS: We had suggested November 19, Your Honor,

1 and obviously, if our standards are coming down during the
2 pendency of the briefing, then I think all the time schedule
3 here makes a good amount of sense. But November 19 would be
4 fine with us.

5 THE COURT: Okay.

6 Defense? What's your position on this?

7 MR. BECKER: November 19 is fine, Your Honor.

8 THE COURT: Okay. That doesn't impose a deadline on
9 you. So before we start putting in dates, does anybody have any
10 objections or questions or concerns about this proposed
11 schedule?

12 MR. HUDIS: I guess, Your Honor, before we start
13 filling in the other dates, I think maybe we start with the
14 initial summary judgment motion in the AERA case, and then it
15 starts to get easier to fill in the rest of the dates.

16 THE COURT: We could do that, because that was filed
17 -- is it because it was filed first?

18 MR. HUDIS: No. The ASTM was filed first.
19 We finished first.

20 THE COURT: Oh, I see.

21 MR. KLAUS: I had understood under your schedule,
22 Your Honor, that Mr. Hudis's opening motion would be filed the
23 same day as Public Resource's opposition to our motion.

24 THE COURT: Right. Right.

25 MR. KLAUS: And we think that's exactly --

1 THE COURT: Yeah. That's what it's going to be.
2 So if the plaintiff's motion in ASTM would be filed November 19,
3 on December 19 -- that's a Saturday, so let's say the 18th?

4 MR. KLAUS: Friday, or the Monday?

5 THE COURT: We can do the Monday.

6 MR. KLAUS: Let's do the Monday.

7 THE COURT: So that's the 21st. The defendant's
8 opposition to the motion for summary judgment and combined
9 cross-motion for summary judgment in the ASTM case would be due,
10 and then plaintiffs' motion for summary judgment in the AERA
11 case would also be due. Okay? Then a month later, which would
12 be January -- what's January 21?

13 MR. KLAUS: That's a Thursday.

14 THE COURT: So January 21, plaintiff's reply in
15 support of summary judgment and the combined opposition to the
16 cross-motion for summary judgment in the ASTM would be due, and
17 defendant's opposition to motion for summary judgment and
18 combined cross-motion for summary judgment in AERA would be due
19 as well. Then two weeks after that, which would take us to
20 what, Ms. Moser?

21 THE DEPUTY CLERK: February 4.

22 THE COURT: Defendant's reply in support of a
23 cross-motion for summary judgment in the ASTM case would be due,
24 and that would give the defendant an additional two weeks.
25 All right? So that's February 4. And is that a weekday?

1 THE DEPUTY CLERK: Thursday.

2 THE COURT: Okay. And then two weeks after that...

3 THE DEPUTY CLERK: The 18th, which is also a Thursday.

4 THE COURT: Okay. February 18, plaintiff's reply in
5 support of the motion for summary judgment and combined
6 opposition to cross-motion for summary judgment in the AERA
7 case. Two weeks after that...

8 THE DEPUTY CLERK: March 3.

9 THE COURT: And I'm going to issue an order with all
10 these. Defendant's reply in support of the cross-motion for
11 summary judgment in the AERA case.

12 Then as far as the amicus briefs, those are due whenever
13 you all want them to be due, but they need to be obviously done
14 well before argument on motions. Frankly, if they could be done
15 by March 3 as well, that would be great, but well before the
16 argument. And then we have to decide a combined motions
17 argument dates.

18 MR. KLAUS: If I could just add, on the amicus
19 briefs -- and I think this probably holds for both sides -- I
20 would imagine that each side would like at least one opportunity
21 in one of the rounds of briefing that we've got here if they're
22 going to take a shot at something that an amicus has said.

23 THE COURT: Okay. What do you suggest?

24 MR. KLAUS: So it may be that slotting in the amici
25 briefs sometime in January may make the most sense.

1 THE COURT: Okay. So amicus briefs in ASTM, can you
2 give me a proposed date?

3 MR. KLAUS: I would propose, Your Honor, the 11th.

4 THE COURT: January 11?

5 MR. KLAUS: January 11.

6 THE COURT: All right. And responses?

7 MR. KLAUS: I think the response should be folded in.
8 By my lights, we'll have another brief to file on January 21.

9 THE COURT: So we just have that due then, too?

10 MR. KLAUS: I would say that unless the parties think
11 they will need additional briefing, I would imagine that on the
12 amici point, there doesn't need to be a whole pile of opposition
13 briefs, provided we have page limits.

14 THE COURT: Yeah, we're going to get to that.

15 MR. KLAUS: Understood. But I think within those,
16 given that each side will be having a final word after an amicus
17 brief is filed, unless there is something that is truly
18 extraordinary that justifies a separate opposition, those
19 arguments can probably be folded into the final brief.

20 THE COURT: What's your position, Mr. Becker? I think
21 that makes more sense. I mean, I think you can address any
22 arguments the amici make in your oppositions.

23 MR. BECKER: All right.

24 THE COURT: And amicus briefs in AERA?

25 MR. HUDIS: So, Your Honor, I'm just going on the

1 initial summary judgment motions. There's a four-week gap.

2 Do you want to do a four-week gap so ours would be due like the
3 second week of February?

4 THE COURT: So between the 4th and the 18th, you mean?

5 MR. HUDIS: Yeah.

6 THE COURT: Sure. Give me a date.

7 MR. KLAUS: How about the 11th?

8 MR. HUDIS: February 11?

9 THE COURT: Okay.

10 MR. HUDIS: That's a Thursday.

11 THE COURT: All right. Great.

12 Now, ASTM had originally asked for extra pages, which was
13 made under the expectation of simultaneous cross-motions. In
14 light of my sequential briefing schedule, how many pages do you
15 think you'll need?

16 MR. KLAUS: We will need, I think, the 60 that we
17 asked for, because we've got three different plaintiff groups,
18 and while we are going to consolidate our arguments, our common
19 arguments, there are some issues that will be different for each
20 of us. So we would still propose that the briefs be 60 pages.

21 THE COURT: Okay. I think that's right. So opening
22 motions, 60 pages.

23 MR. HUDIS: Is that both cases, Your Honor?

24 THE COURT: Yeah, unless you can make your case.
25 Do you need more for your case? I was going to say combined

1 oppositions on cross-motions would be 80 pages and opening briefs
2 60, but if you can make your case for more, I'll consider it.

3 MR. HUDIS: On my opening brief, if you're going to
4 give us 60 pages, I'll take it.

5 THE COURT: All right. Don't feel the need to use all
6 the pages.

7 MR. HUDIS: Of course not, but if we have room.

8 THE COURT: Fine. I don't want you to leave out an
9 argument that... Okay, so opening motions would be 60 pages;
10 combined oppositions and cross-motions, 80 pages; combined
11 replies and oppositions, 50 pages; and replies, 30 pages.
12 Again, I'll put this all in the order.

13 MR. HUDIS: So, Your Honor, the dates I have
14 running down the right-hand column are November 19, December 21,
15 January 21, February 4, February 18, March 3. On the amicus,
16 January 11, February 11.

17 THE COURT: That's right.

18 MR. HUDIS: Thank you, Your Honor.

19 THE COURT: That's what I have.

20 All right. Who wants to -- well, okay, we got the opening
21 of the briefing. Great.

22 Joint motion hearing. It seems like that's what you're
23 asking for anyway, because I have a note to myself saying to get
24 the parties to agree to a joint motion hearing. So that's the
25 easy one. All right. Do you want to set a date now since we

1 have you all here?

2 MR. KLAUS: It's obviously a lot of briefing,
3 Your Honor, but we'd be happy to set a date now.

4 THE COURT: I mean, obviously, if there's motions for
5 -- I don't even want to raise the issue of motions for extension
6 of time, but in an abundance of caution, let's set a date with
7 the understanding that we may have to push it.

8 Is that fine, Mr. Becker?

9 MR. BECKER: Yes. I don't know the schedule of
10 Andrew Bridges, the lead on this case, Your Honor, so I couldn't
11 necessarily say that if we --

12 THE COURT: Well, I'm going to do this. Let's pick a
13 motions-hearing date. If there's some reason that's bad, confer
14 with the other side, come up with a mutually agreeable date, and
15 we'll set it.

16 MR. HUDIS: So, Your Honor, the last date I have on
17 the schedule, the last brief would be March 3.

18 THE COURT: Okay.

19 MR. HUDIS: So if you want to put in some wiggle room
20 sometime during the week of the 21st?

21 THE COURT: Is there a date you would both prefer?

22 MR. HUDIS: What's your favorite day of the week?

23 (Laughter)

24 THE COURT: I'm wide open that week, so Mr. Becker?

25 MR. HUDIS: Tuesday the 22nd?

1 THE COURT: Tuesday the 22nd, Mr. Becker?

2 MR. BECKER: Yes, Your Honor.

3 THE COURT: All right. So why don't you check as
4 early as possible and find out if that is a good date for
5 Mr. Bridges. As you heard, that's wide open for me, and it
6 sounds like it may be open for the other side.

7 So, motions hearing Tuesday, March 22. Let's block off a
8 morning.

9 MR. HUDIS: What time would you like to start,
10 Your Honor?

11 THE COURT: 9:30.

12 MR. HUDIS: 9:30.

13 THE COURT: All right?

14 MR. HUDIS: Very gracious, Your Honor. Thank you.

15 THE COURT: You're very welcome. I'm glad all the
16 discovery issues are resolved and we're moving forward.

17 Mr. Becker?

18 MR. BECKER: Your Honor, may I ask a question of the
19 Court?

20 THE COURT: Yes.

21 MR. BECKER: With regards to the standards in the ASTM
22 case, are you instructing that the standards in that case should
23 be taken down pending the outcome of this case?

24 THE COURT: Well, there's no request for preliminary
25 injunction, and I'm not going to order that. One of the reasons

1 that the plaintiffs articulated for wanting a more compressed
2 briefing schedule was this prejudice they were suffering because
3 these documents were up, and you had said in the joint status
4 report that -- let me just find it. Hold on.

5 Right. Where defendants state that the only standard at
6 issue in the AERA case has been taken off-line by Public
7 Resource after agreement of the parties pending the outcome of
8 that case, so there's no rush to reach a judgment.

9 Counsel for the plaintiffs pointed out that that was not
10 the case in the ASTM case and there had been some issues.
11 I don't want to order anything that doesn't have a preliminary
12 injunction. You were asked if you would be willing to do it, at
13 least during the briefing schedule, and you agreed to do it
14 during the briefing schedule. We can revisit the issue after
15 the briefing schedule. Is that agreeable?

16 MR. BECKER: Okay. So in that case, Public Resource
17 would take the standards down during the briefing schedule.

18 THE COURT: Yes.

19 MR. BECKER: My understanding is that this would
20 include -- this would be the standards at issue in this
21 litigation but not any documents that the plaintiffs have not
22 filed suit over. Is that...

23 THE COURT: I don't have any jurisdiction over those.

24 MR. BECKER: Thank you, Your Honor.

25 THE COURT: Maybe not. Yes? I'm sorry.

1 MR. FEE: On that last point, part of our concern is
2 they keep putting up new documents that we haven't made part of
3 this case yet. Once this case is resolved, obviously, it's
4 going to deal indirectly with all those standards as well.

5 THE COURT: It will.

6 MR. FEE: So if we're going to stretch this thing out
7 for months and months, I do think that they should not be able
8 to keep up the standards that they've posted recently as well.

9 THE COURT: I mean, there's no injunction, there's no
10 restraining order, but to the extent that you are engaging in
11 repetitive behavior, Mr. Becker, that's going to affect this
12 case, I can't order you to stop.

13 Well, I could tell you that if you're putting up similar
14 documents, you are giving plaintiffs an opportunity to come in
15 here and move for preliminary injunction and derail this and
16 have you stopped. If you're willing to stop while at least the
17 briefing schedule is pending, then yes, you should do that.

18 MR. BECKER: Thank you, Your Honor.

19 MR. KLAUS: Was that an agreement by Mr. Becker?

20 THE COURT: Yeah, let us have a cease-fire until the
21 motions argument.

22 MR. BECKER: Okay, Your Honor.

23 MR. KLAUS: Thank you, Your Honor.

24 THE COURT: Thank you. I'll see you all in March.

25 (Proceedings adjourned at 11:03 a.m.)

* * * * *

CERTIFICATE

I, BRYAN A. WAYNE, Official Court Reporter, certify
that the foregoing pages are a correct transcript from the
record of proceedings in the above-entitled matter.

Bryan Wayne

BRYAN A. WAYNE

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a/ ASTM INTERNATIONAL; NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS, Plaintiffs/ Counter-Defendants, v. PUBLIC.RESOURCE.ORG, INC., Defendant/ Counter-Plaintiff.	Case No. 1:13-cv-01215-TSC
--	----------------------------

**[PROPOSED] ORDER GRANTING PLAINTIFFS' MOTION FOR LEAVE TO FILE
DOCUMENTS UNDER SEAL**

Having fully considered the Motion to File Documents Under Seal filed by Plaintiffs/Counter-Defendants American Society for Testing and Materials d/b/a ASTM International ("ASTM"), National Fire Protection Association, Inc. ("NFPA"), and American Society of Heating, Refrigerating, and Air Conditioning Engineers ("ASHRAE") (collectively, "Plaintiffs"), and for good cause shown, it is hereby

ORDERED that the Motion to File Documents Under Seal is **GRANTED**. The following documents shall be filed under seal:

- Exhibit 1 to the Declaration of Jordana S. Rubel, which contains the Expert Report of John C. Jarosz.

- Exhibit 3 to the Declaration of Jordana S. Rubel, which includes excerpts from the deposition of Carl Malamud, which took place on February 27, 2015.

IT IS SO ORDERED.

Dated: _____

Hon. Tanya S. Chutkan
United States District Judge

MATERIAL UNDER SEAL DELETED

JA00068-JA00181

Case 1:13-cv-01215-TSC Document 118-1 Filed 11/19/15 Page 1 of 74

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

<p>AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a/ ASTM INTERNATIONAL;</p> <p>NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and</p> <p>AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS,</p> <p>Plaintiffs/ Counter-Defendants,</p> <p>v.</p> <p>PUBLIC.RESOURCE.ORG, INC.,</p> <p>Defendant/ Counter-Plaintiff.</p>	<p>Case No. 1:13-cv-01215-TSC</p>
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**PLAINTIFFS' MEMORANDUM OF LAW IN SUPPORT OF THEIR MOTION FOR
SUMMARY JUDGMENT AND FOR A PERMANENT INJUNCTION**

TABLE OF CONTENTS

	Page
INTRODUCTION	1
STATEMENT OF FACTS	3
I. The Standards Development System and Plaintiffs’ Standards Development Activities	3
A. The Standards Development Process	4
1. ASTM	4
2. NFPA	6
3. ASHRAE	8
B. Incorporation by Reference	9
C. Plaintiffs’ Standards Are Widely Available to the Public.	10
II. Defendant’s Unauthorized Copying and Distribution of Plaintiffs’ Standards	11
ARGUMENT	13
I. Standard for Summary Judgment	13
II. Plaintiffs Are Entitled to Summary Judgment on Their Copyright Infringement Claims.	13
A. Defendant Reproduced, Distributed and Displayed the Works and/or Created Derivative Works Based on the Works Without Authorization.	14
B. Plaintiffs Own Valid Copyrights in the Works	15
C. All of Defendant’s Affirmative Defenses to Copyright Infringement Are Meritless	18
1. The Incorporation of Plaintiffs’ Standards by Reference in Federal, State and Local Statutes and Regulations Does Not Divest Plaintiffs of Copyright in those Standards.	18
a. The Copyright Act and Other Federal Statutes Indicate that Congress Did Not Intend Incorporation by Reference to Destroy Copyright	19
b. The Case Law Does Not Support Defendant’s Argument that Incorporation by Reference Destroys Plaintiffs’ Copyrights	22
c. Public Policy Strongly Favors Copyright Protection for Plaintiffs’ Standards	30
2. The “Merger Doctrine” Does Not Excuse Defendant’s Conduct.	32

TABLE OF CONTENTS
(continued)

	Page
3. Defendant’s Wholesale Copying of Plaintiffs’ Standards and Making Them Available to the Public Is Not Fair Use.	34
a. The Purpose and Character of the Use.....	34
b. The Nature of the Copyrighted Work	37
c. The Amount and Substantiality of the Work Taken	37
d. The Effect of the Use Upon the Potential Market.....	38
4. Defendant’s Other Affirmative Defenses are Meritless.....	40
III. Plaintiffs Are Entitled to Summary Judgment On Their Claims Of Trademark Infringement and False Designation of Origin.	42
A. Plaintiffs Own Valid Trademarks that are Distinctive or Have Acquired Secondary Meaning.	42
B. Defendant’s Use of Plaintiffs’ Trademarks Creates a Likelihood of Confusion.....	43
1. Members of the Public Are Likely to Believe that the Materials Defendant Posted are Genuine Versions of Plaintiffs’ Standards.	44
2. The Materials Defendant Posted are Not Genuine Versions of Plaintiffs’ Standards.....	45
a. The Materials Posted by Defendant Are Not Exact Copies of Plaintiffs’ Works.....	45
b. The Materials Defendant Posted Did Not Undergo Plaintiffs’ Quality Control.	47
C. Defendant’s Activities Satisfy the “Use in Commerce” Requirement.	48
D. Defendant’s Use of Plaintiffs’ Marks is Not Fair Use.	50
IV. Plaintiffs are Entitled to a Permanent Injunction.....	52
A. Plaintiffs Have Suffered Irreparable Injury.	52
1. Economic Harm and Ramifications to Plaintiffs’ Business Model	53
2. Harm to Plaintiffs’ Right to Exclude	54
3. Harm to Plaintiffs’ Reputations	55
B. Remedies Available at Law Are Inadequate.....	55
C. The Balance of Hardships Favors Issuing an Injunction.	57
D. The Public Interest Favors Issuing an Injunction.	58
CONCLUSION.....	60

TABLE OF AUTHORITIES

	Page(s)
FEDERAL CASES	
<i>A&M Records, Inc. v. Napster, Inc.</i> , 239 F.3d 1004 (9th Cir. 2001)	14
<i>AAMC v. Princeton Review, Inc.</i> , 332 F. Supp. 2d 11 (D.D.C. 2004)	41
<i>AARP v. Sytle</i> , 991 F. Supp. 2d 224 (D.D.C. 2013)	42
<i>Adolph Coors Co. v. A. Genderson & Sons, Inc.</i> , 486 F. Supp. 131 (D. Colo. 1980)	48
<i>Am. Ass’n for the Advancement of Science v. Hearst Corp.</i> , 498 F. Supp. 244 (D.D.C. 1980)	43
<i>Anderson v. Liberty Lobby, Inc.</i> , 477 U.S. 242 (1986)	13
<i>Apple Computer, Inc. v. Formula Int’l Inc.</i> , 725 F. 2d 521 (9th Cir. 1984)	32
<i>Apple Computer, Inc. v. Franklin Computer Corp.</i> , 714 F.2d 1240 (3d Cir. 1983)	58
<i>Atari Games Corp. v. Nintendo of Am., Inc.</i> , 975 F.2d 832 (Fed. Cir. 1992)	32
<i>Authors Guild, Inc. v. Google, Inc.</i> , 954 F. Supp. 2d 282 (S.D.N.Y. 2013), aff’d, 804 F.3d 202 (2d Cir. 2015)	14
<i>Authors Guild, Inc. v. Google, Inc.</i> , 804 F.3d 202 (2d Cir. 2015)	passim
<i>Authors Guild, Inc. v. HathiTrust</i> , 755 F.3d 87 (2d Cir. 2014)	36
<i>Banks v. Manchester</i> , 128 U.S. 244 (1888)	24
<i>Bill Graham Archives v. Dorling Kindersley Ltd.</i> , 448 F.3d 605 (2d Cir. 2006)	39

TABLE OF AUTHORITIES
(continued)

	Page(s)
<i>Billy-Bob Teeth v. Novelty, Inc.</i> , 329 F.3d 586 (7th Cir. 2003)	17
<i>Bldg. Officials & Code Adm. v. Code Tech., Inc.</i> , 628 F.2d 730 (1st Cir. 1980)	25
<i>BMG Music v. Gonzalez</i> , 430 F.3d 888 (7th Cir. 2005)	39, 40
<i>Breaking the Chain Found. v. Capital Educ. Support, Inc.</i> , 589 F. Supp. 2d 25 (D.D.C. 2008)	54, 55
<i>Broad. Music, Inc. v. PAMDH Enters.</i> , No. 13 Civ. 2255 (KMW), 2014 WL 2781846 (S.D.N.Y. June 19, 2014)	54
<i>Brownmark Films, LLC v. Comedy Partners</i> , 800 F. Supp. 2d 991 (E.D. Wis. 2011)	17
<i>Cairns v. Franklin Mint Co.</i> , 292 F.3d 1139 (9th Cir. 2002)	50
<i>Call of the Wild Movie, LLC v. Does</i> , 770 F. Supp. 2d 332 (D.D.C. 2011)	14
<i>Campbell v. Acuff-Rose Music, Inc.</i> , 510 U.S. 569 (1994)	29, 34, 37
<i>CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports, Inc.</i> , 44 F.3d 61 (2d Cir. 1994)	passim
<i>Celotex Corp. v. Catrett</i> , 477 U.S. 317 (1986)	13
<i>Century 21 Real Estate Corp. v. Lendingtree, Inc.</i> , 425 F.3d 211 (3d Cir. 2005)	50, 51
<i>Concrete Mach. Co. v. Classic Lawn Ornaments, Inc.</i> , 843 F.2d 600 (1st Cir. 1988)	57
<i>Coquico, Inc. v. Rodriguez-Miranda</i> , 562 F.3d 62 (1st Cir. 2009)	32

TABLE OF AUTHORITIES
(continued)

	Page(s)
<i>David’s Bridal, Inc. v House of Brides, Inc.</i> , No. 06 Civ. 5660 (SRC), 2010 WL 323306 (D.N.J. Jan. 20, 2010)	51
<i>Davis v. Blige</i> , 505 F.3d 90 (2d Cir. 2007).....	16, 17
<i>DSMC, Inc. v. Convera Corp.</i> , 479 F. Supp. 2d 68 (D.D.C. 2007)	15
<i>eBay Inc. v. MercExchange, L.L.C.</i> , 547 U.S. 388 (2006).....	52
<i>Eden Toys, Inc. v. Florelee Undergarment Co.</i> , 697 F.2d 27 (2d Cir. 1982).....	18
<i>El Greco Leather Products Co. v. Shoe World, Inc.</i> , 806 F.2d 392 (2d Cir. 1986).....	48
<i>Fox Television Stations, Inc. v. FilmOn X LLC</i> , 966 F. Supp. 2d 30 (D.D.C. 2013)	55, 57, 58
<i>Fox v. Washington</i> , 236 U.S. 273 (1915).....	28
<i>Franchised Stores of N.Y., Inc. v. Winter</i> , 394 F.2d 664 (2d Cir. 1968).....	49
<i>Globalaw Ltd. v. Carmon & Carmon Law Office</i> , 452 F. Supp. 2d 1 (D.D.C. 2006)	43
<i>Hanley-Wood LLC v. Hanley Wood LLC</i> , 783 F. Supp. 2d 147 (D.D.C. 2011)	54, 55
<i>Harper & Row Publishers, Inc. v. Nation Enters.</i> , 471 U.S. 539 (1985).....	36, 37, 38
<i>Hart v. Sampley</i> , Civ. A. No. 91-3068 (CRR), 1992 WL 336496 (D.D.C. June 24, 1992)	18
<i>Hewlett-Packard Co. v. Repeat-O-Type Stencil Mfg. Corp.</i> , 34 U.S.P.Q.2d 1450 (N.D. Cal. 1995)	48

TABLE OF AUTHORITIES
(continued)

	Page(s)
<i>Holcomb v. Powell</i> , 433 F.3d 889 (D.C. Cir. 2006)	13
<i>Infinity Broad. Corp. v. Kirkwood</i> , 150 F.3d 104 (2d Cir. 1998).....	35
<i>Int’l Cosmetics Exch., Inc. v. Gapardis Health & Beauty, Inc.</i> , 303 F.3d 1242 (11th Cir. 2002)	43, 45
<i>Intermatic Inc. v. Toeppen</i> , 947 F. Supp. 1227 (N.D. Ill. 1996)	49
<i>John G. Danielson, Inc. v. Winchester-Conant Properties, Inc.</i> , 186 F. Supp. 2d 1 (D. Mass. 2002)	25, 26
<i>John G. Danielson, Inc. v. Winchester-Conant Properties, Inc.</i> , 322 F.3d 26 (1st Cir. 2003).....	26
<i>Maxwood Music Ltd. v. Malakian</i> , 713 F. Supp. 2d 327 (S.D.N.Y. 2010).....	17
<i>Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.</i> , 518 F. Supp. 2d 1197 (C.D.Cal. 2007)	54
<i>Miller v. French</i> , 530 U.S. 327 (2000).....	28
<i>Mitchell Bros. Film Grp. v. Cinema Adult Theater</i> , 604 F.2d 852 (5th Cir. 1979)	41
<i>MOB Music Publ’g v. Zanzibar on the Waterfront, LLC</i> , 698 F. Supp. 2d 197 (D.D.C. 2010)	13
<i>Nat’l Cable Television Ass’n, Inc. v. Broad. Music, Inc.</i> , 772 F. Supp. 614 (D.D.C. 1991)	41
<i>New Kids on the Block v. News Am. Publ’g, Inc.</i> , 971 F.2d 302 (9th Cir. 1992)	50
<i>North Jersey Media Grp. Inc. v. Pirro</i> , 74 F. Supp. 3d 605	39

TABLE OF AUTHORITIES
(continued)

	Page(s)
<i>Oracle Am., Inc. v. Google Inc.</i> , 750 F.3d 1339 (Fed. Cir. 2014).....	32
<i>Park 'N Fly, Inc v. Dollar Park and Fly, Inc.</i> , 469 U.S. 189 (1985).....	43
<i>Perkins Sch. for the Blind v. Maxi-Aids Inc.</i> , 274 F. Supp. 2d 319 (E.D.N.Y. 2003)	47
<i>Planned Parenthood Federation of Am., Inc. v. Bucci</i> , No. 97 Civ. 0629 (KMW), 1997 WL 133313 (S.D.N.Y. Mar. 24, 1997).....	49
<i>Practice Mgmt. Info. v. American Med. Ass’n</i> , 121 F. 3d 516 (9th Cir. 1997), amended on other grounds, 133 F.3d 1140 (1998).....	passim
<i>Roeslin v. District of Columbia</i> , 921 F. Supp. 793 (D.D.C. 1995)	17
<i>Rosetta Stone Ltd. v. Google, Inc.</i> , 676 F.3d 144 (4th Cir. 2012)	50
<i>Sara Lee Corp. v. Kayser-Roth Corp.</i> , 81 F.3d 455 (4th Cir. 1996)	44
<i>Satava v. Lowry</i> , 323 F.3d 805 (9th Cir. 2003)	32
<i>Seltzer v. Green Day, Inc.</i> , 725 F.3d 1170 (9th Cir. 2013)	35
<i>Shell Oil Co. v. Commercial Petroleum, Inc.</i> , 928 F.2d 104 (4th Cir. 1991)	47
<i>Slate v. Am. Broad. Cos.</i> , 941 F. Supp. 2d 27 (D.D.C. 2013)	41
<i>Steele v. Bulova Watch Co.</i> , 344 U.S. 280 (1952).....	49
<i>Stenograph LLC v. Bossard Assocs., Inc.</i> , 144 F.3d 96 (D.C. Cir. 1998)	14, 15

TABLE OF AUTHORITIES
(continued)

	Page(s)
<i>Tech 7 Sys., Inc. v. Vacation Acquisition, LLC</i> , 594 F. Supp. 2d 76 (D.D.C. 2009)	41
<i>Toyota Motor Sales U.S.A., Inc. v. Tabari</i> , 610 F.3d 1171 (9th Cir. 2010)	51
<i>Triad Sys. Corp. v. Southeastern Express Co.</i> , 64 F.3d 1330 (9th Cir. 1995)	57
<i>UMG Recordings, Inc. v. MP3.com, Inc.</i> , 92 F. Supp. 2d 349 (S.D.N.Y. 2000).....	35
<i>United We Stand America, Inc. v. United We Stand, America New York, Inc.</i> , 128 F.3d 86 (2d Cir. 1997).....	49
<i>Veeck v. Southern Bldg. Code Cong. Int’l, Inc.</i> , 49 F. Supp.2d 885 (E.D. Tex. 1999).....	26
<i>Veeck v. Southern Bldg. Code Cong. Int’l, Inc.</i> , 293 F.3d 791 (5th Cir. 2003) (<i>en banc</i>)	passim
<i>Wall Data Inc. v. Los Angeles Cty. Sheriff’s Dept.</i> , 447 F.3d 769 (9th Cir. 2006)	34, 35
<i>Walt Disney Co. v. Powell</i> , 897 F.2d 565 (D.C. Cir. 1990)	54
<i>Worldwide Church of God v. Philadelphia Church of God, Inc.</i> , 227 F.3d 1110 (9th Cir. 2000)	35, 38
<i>Wynn Oil Co. v. Thomas</i> , 839 F.2d 1183 (6th Cir. 1988)	44
<i>Zenith Elecs Corp. v. WH-TV Broad. Corp.</i> , 395 F.3d 416 (7th Cir. 2005)	40
<i>Zobmondo Entm’t, LLC v. Falls Media, LLC</i> , 602 F.3d 1108 (9th Cir. 2010)	43

FEDERAL STATUTES

5 U.S.C. § 552(a)(1).....	10
15 U.S.C. § 272.....	21

TABLE OF AUTHORITIES
(continued)

	Page(s)
15 U.S.C. § 1114(1)	48
15 U.S.C. § 1115(b)	43
15 U.S.C. § 1116.....	52
15 U.S.C. § 1125(a)(1).....	48
15 U.S.C. § 1127	49
17 U.S.C. § 101.....	15, 16
17 U.S.C. § 105.....	20
17 U.S.C. § 106.....	14
17 U.S.C. § 106(1)	14
17 U.S.C. § 106(2)	15
17 U.S.C. § 106(3)	14
17 U.S.C. § 106(3) and (5).....	14
17 U.S.C. § 106(5)	14
17 U.S.C. § 107.....	34, 37, 38
17 U.S.C. § 201(a)	20
17 U.S.C. § 201(b)	17
17 U.S.C. § 201(d)(2)	17
17 U.S.C. § 204.....	20
17 U.S.C. § 302.....	20
17 U.S.C. § 410(c)	15
17 U.S.C. § 502(a)	52
17 U.S.C § 504(c)	56

TABLE OF AUTHORITIES
(continued)

	Page(s)
National Technology Transfer and Advancement Act of 1995, Pub. L. No. 104-113 § 12(d), 110 Stat. 775.....	3, 21, 22, 30
Pub. L. No. 104-113 § 12, 110 Stat. 775, 782-83 (1996)	3, 4, 5
 RULES	
Fed. R. Civ. P. 56.....	13
 FEDERAL REGULATIONS	
1 C.F.R. §§ 51.3, 51.5	10
1 C.F.R. § 51.7(a)(3).....	10
63 Fed. Reg. 8546, 8554-55, <i>available at</i> https://www.whitehouse.gov/omb/circulars_a119	9, 21
77 Fed. Reg. 11414 (Feb. 27, 2012), <i>available at</i> https://federalregister.gov/a/2012-4399	21
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 CONSTITUTIONAL PROVISIONS	
U.S. Const. Article I, § 8, cl. 8.....	19
 LEGISLATIVE MATERIALS	
H.R. Rep. No. 94-1476, 94th Cong., 2d Sess. (1976).....	20
H.R. Rep. No. 104-390, 104th Cong., 1st Sess., pt. VII, § 12 (1995)	30
 OTHER AUTHORITIES	
Emily S. Bremer, <i>On the Cost of Private Standards in Public Law</i> , 63 U. Kan. L. Rev. 279, 293-94 (2015)	29
1 Melville B. Nimmer & David Nimmer, <i>Nimmer on Copyright</i> § 5.06[C] (1996).....	24
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TABLE OF AUTHORITIES
(continued)

	Page(s)
National Research Council, <i>Standards, Conformity Assessment, and Trade into the 21st Century</i> vii (National Academy Press 1995), available at http://www.nap.edu/read/4921/chapter/1	20, 21
1 <i>Nimmer on Copyright</i> § 5.12 (2015).....	29
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INTRODUCTION

Without Plaintiffs' consent, Defendant posted on the internet copies of hundreds of Plaintiffs' standards and made them available for free downloading, printing, or any other use, in blatant violation of Plaintiffs' copyrights and trademarks. Defendant took this brazen action with full awareness of and indifference to the detrimental effect its actions would have on Plaintiffs' non-profit missions.

Defendant's actions threaten to undo a public/private partnership that Congress and the executive branch carefully established. This longstanding arrangement incentivizes private entities to assume the necessary burden of creating standards and codes while permitting government entities to incorporate those copyrighted works by reference in statutes and regulations. The standard developers' retention of the copyright in the standards is an essential ingredient in creating this incentive. Defendant implicitly acknowledged as much by appealing to Congress and the executive branch to amend the Copyright Act and to change the regulations and executive orders explicitly affirming standard developers' copyrights in the private standards they create. Unsuccessful in those venues, Defendant engaged in self-help by disregarding Plaintiffs' copyrights and now asks the Court to undo a carefully considered arrangement that has worked well for over 100 years.

Defendant's asserted mission of making the standards widely available to the public is a solution to a nonexistent problem. The public already had easy access to Plaintiffs' standards without Defendant's intervention. There is no evidence that any member of the public has been unable to access Plaintiffs' standards. It is undisputed that all of the standards that are the subject of this motion are available for purchase at reasonable costs, and Plaintiffs even make read-only versions of these standards available for free on their websites. In addition, federal

law requires that the Office of the Federal Register maintain a copy of all standards incorporated by reference in federal law for inspection by the public.

From the outset, the crux of the parties' dispute has been whether a privately developed standard loses its copyright protection once a governmental authority incorporates the standard by reference. Rather than focus on this question, Defendant seeks to distract the Court by throwing up every imaginable meritless defense to copyright and trademark infringement. For example, Defendant now seeks to challenge Plaintiffs' ownership of their standards even though, before this lawsuit, no one had ever challenged Plaintiffs' ownership of the copyrights in their standards and Defendant had repeatedly acknowledged that Plaintiffs were the authors of the works. This is hardly surprising given that Plaintiffs' employees play a critical role in the writing of the standards, and Plaintiffs' practice is to obtain written assignments of copyright from all other contributors to the standards as well. Defendant's other defenses, such as copyright misuse, waiver, and estoppel, are equally baseless.

Plaintiffs seek summary judgment only with respect to their claims concerning the following works: ASTM D86-07, ASTM D975-07, ASTM D396-98, ASTM D1217-93(98), the 2011 and 2014 versions of NFPA's National Electrical Code, and the 2004, 2007 and 2010 versions of ASHRAE's Standard 90.1 (collectively, the "Works").¹ Rather than move on each of the more than 200 works in suit, Plaintiffs have selected this subset of particularly important standards in an effort to streamline the issues presented to the Court and to allow for a determination of the core legal issue underlying this action — whether incorporation by reference of Plaintiffs' standards in statutes and regulations nullifies Plaintiffs' copyrights in those standards.

¹ Plaintiffs believe that, with the benefit of the Court's guidance on this motion, the parties will be able to resolve any remaining dispute with respect to the other works in suit.

The answer to this key question is that incorporation by reference does not invalidate Plaintiffs' copyrights, and, accordingly, the Court should grant summary judgment in favor of Plaintiffs. Plaintiffs also move for an injunction prohibiting Defendant from continuing to infringe Plaintiffs' copyrights and trademarks.

STATEMENT OF FACTS

I. THE STANDARDS DEVELOPMENT SYSTEM AND PLAINTIFFS' STANDARDS DEVELOPMENT ACTIVITIES

Plaintiffs are non-profit organizations that develop private-sector standards to advance public safety, ensure compatibility across products and services, facilitate training, and spur innovation. *See* Statement of Undisputed Material Facts ("SUMF") at ¶¶ 9, 13, 14, 86, 87, 129, 130. The term "standards" refers to a variety of technical works, including works that contain product specifications, installation methods, methods for manufacturing or testing materials, recommended practices to ensure safety or efficiency, or other guidelines or best practices. SUMF ¶ 1. An organization that develops standards is a "standards development organization" or "SDO." SUMF ¶ 2.

In the United States, standards are typically developed by private organizations that have technical expertise in the relevant areas. SUMF ¶ 3. Standards are usually highly technical and specialized, and are written for audiences that have particular expertise in the relevant fields. SUMF ¶ 4. Standards are used by industry actors as a form of self-regulation and as a source of best practices. SUMF ¶ 5. Government agencies also use standards, including by incorporating them by reference in statutes and regulations. SUMF ¶¶ 53, 90, 134. The National Technology Transfer and Advancement Act of 1995, for example, requires federal agencies to use privately developed standards whenever possible. Pub. L. No. 104-113 § 12, 110 Stat. 775, 782-83 (1996). This system of privately developed standards has developed over the course of a

century. SUMF ¶¶ 10-11, 86. It serves the country well by facilitating the development and updating of the highest quality standards covering a range of topics at little to no public expense. SUMF ¶ 265.

A. The Standards Development Process

The Works in this case are “voluntary consensus standards.” SUMF ¶¶ 12, 87, 97. This means that Plaintiffs’ standards development processes draw on a wide range of input from a variety of interests and sources of expertise. SUMF ¶¶ 7, 29, 95, 135. In accordance with the requirements of the American National Standards Institute, which coordinates voluntary consensus standards development in the United States, Plaintiffs utilize technical committees that contain a balanced membership, including industry representatives, government representatives, consumers, people with particular expertise in the subject matter, and others. *Id.* Plaintiffs’ technical committees conduct open proceedings, consider a wide range of input and suggestions, and provide mechanisms for appeal. SUMF ¶¶ 7, 12, 88.

1. ASTM

ASTM’s mission is to be recognized as the premier developer and provider of voluntary consensus standards, related technical information and services that promote public health and safety, support the protection and sustainability of the environment, and improve the overall quality of life; contribute to the reliability of materials, products, systems, and services; and facilitate international, regional, and national commerce. SUMF ¶ 9. ASTM standards are used in a wide range of fields, including consumer products, iron and steel products, rubber, paints, plastics, textiles, medical services and devices, electronics, construction, energy, water, and petroleum products. SUMF ¶ 13. ASTM has over 140 technical committees made up of over 23,000 technical members representing producers, users, consumers, government, and academia from more than 150 countries. SUMF ¶ 28.

ASTM's standards development process begins with an individual either registering a "work item," which describes the idea for a new standard that will be developed and owned by ASTM, or moving to draft a new standard at a subcommittee meeting. SUMF ¶ 31. If the chair of the relevant subcommittee approves the work item or the subcommittee approves the motion for a new standard, a task group will develop a draft of the standard. SUMF ¶ 32. The standard is drafted through an iterative process, in which many people on the task group share ideas, suggest wording and provide comments. SUMF ¶ 33. The draft standard is then edited by an ASTM staff member, who also adds certain language and components that are required by the ASTM form and style guide. SUMF ¶ 34. ASTM staff members drafted language that appears in each of the standards at issue in this litigation. SUMF ¶ 35. The draft standard is then voted on by first the entire subcommittee, followed by the entire main committee and the complete Society, and reviewed by the Committee on Standards to ensure that all procedures were followed. SUMF ¶ 36. At each level of balloting, voters can suggest edits or provide comments. SUMF ¶ 39. Each negative vote must be addressed to determine if it is persuasive. *Id.* At least 66.7% of the voting subcommittee members and 90% of the voting main committee members must approve all standard actions, with not less than 60% of the voting members returning ballots. *Id.*

ASTM has developed over 12,000 standards through this exhaustive process. SUMF ¶ 41. All ASTM standards are reviewed on a five-year schedule and either reapproved, revised or withdrawn in revision cycles that typically take eight to twelve months to complete. SUMF ¶ 42. Approximately 10 percent of ASTM's standards are incorporated by reference into federal regulations. SUMF ¶ 53.

ASTM incurs substantial costs for its standards development infrastructure and delivery platforms, including the resources it provides to encourage collaboration among members; expenses relating to technical committee meetings and balloting as the standards make their way through the development process; and editing, producing, distributing and promoting the completed standards. SUMF ¶ 43. In 2014, ASTM spent more than \$9 million to cover the costs of technical committee operations and \$19 million for publication of copyrighted materials. SUMF ¶ 44. ASTM generates over two-thirds of its revenue from the sale of copyrighted materials. SUMF ¶ 47.

2. NFPA

NFPA's mission is to reduce the risk of death, injury, and property and economic loss due to fire, electrical, and related hazards. SUMF ¶ 86. NFPA's principal activity is the development and publication of over 300 standards in the areas of fire, electrical, and building safety. SUMF ¶ 87, 92. NFPA's flagship work is the National Electrical Code ("NEC"), which is the world's leading standard for electrical safety and provides the benchmark for safe electrical design, installation and inspection to protect people and property from electrical hazards. SUMF ¶ 94. The first NEC was published in 1897, and NFPA revises the NEC every three years. SUMF ¶ 93. The 2014 edition of the NEC is over 900 pages long. *Id.* Other NFPA standards include NFPA 101, the Life Safety Code, and NFPA 13, the Standard for the Installation of Sprinkler Systems. *Id.*

NFPA standards are developed and updated according to a multi-phase process that takes approximately two years. The standards development process involves creative input from three primary groups of participants. SUMF ¶ 109. First, members of the public provide proposals and comments regarding changes or additions to the standard. SUMF ¶ 110. Second, NFPA Technical Committees meet to consider the public proposals and to suggest their own revisions

to the standards. SUMF ¶ 114. The Technical Committees are composed of volunteers from business, industry, public interest groups, government, academia, and others. *Id.* Third, NFPA staff participate in the process in multiple ways. SUMF ¶¶ 117-18. Each Technical Committee has a NFPA staff liaison who facilitates and runs the meetings, provides advice to the committee, and records the decisions made by the committee. NFPA technical and editorial staff also work with the Committees and with each other to craft appropriate wording that accurately captures the intent of Technical Committee decisions, and to revise and finalize the language of the draft standard in accordance with NFPA's style and editorial guidelines. *Id.* Each NFPA standard goes through two full rounds of public and committee input, comments, review and drafts before being issued. SUMF ¶ 119. The process results in the issuance of sophisticated and complex original works that support NFPA's mission of promoting public safety. *Id.*

NFPA incurs numerous expenses in the course of this standards development process. Those expenses include employing NFPA's staff of technical experts who advise the Technical Committees, funding research and data collection efforts, employing publications staff and administrative personnel to assist in drafting the actual text of the standards, publishing the various reports issued by the committees and collecting public input and comments, and arranging and paying for meeting sites for the committees. SUMF ¶ 104. For instance, developing a new edition of the NEC involves consideration of thousands of comments and proposals from the public, the participation of hundreds of Technical Committee members in multiple rounds of intensive multi-day meetings, and the active assistance of dozens of NFPA staff. SUMF ¶ 119. In 2014, NFPA spent more than \$13.5 million on standards development. SUMF ¶ 105. NFPA depends on revenue from the sale of its standards to fund this resource-intensive process. Over 70% of NFPA's revenue comes from the sale of its copyrighted

publications, and the vast majority of that publications revenue comes from the sale of NFPA standards. SUMF ¶ 106.

3. ASHRAE

ASHRAE's mission is to advance the arts and sciences of heating, ventilating, air conditioning and refrigerating in order to serve humanity and promote a sustainable world. ASHRAE accomplishes this by leveraging its unparalleled expertise in HVAC/R systems to develop consensus-based standards. SUMF ¶ 129. ASHRAE maintains over one hundred standards and guidelines that apply to a variety of fields within the construction industry, such as energy efficiency, indoor air quality, refrigeration, and sustainability. SUMF ¶ 130. The primary ASHRAE standard at issue here, ASHRAE 90.1, provides minimum energy-efficiency requirements for commercial buildings and high-rise residential buildings. SUMF ¶ 132. Due to constant changes in the construction industry, ASHRAE considers ASHRAE 90.1 to be under "continuous maintenance," which means that the standard is automatically supplemented and updated every eighteen months and a new version of 90.1 is released every three years. *Id.*

ASHRAE's voluntary consensus standards are developed and updated through a process designed to ensure broad participation from all affected interest groups, including the public. SUMF ¶¶ 135-36. ASHRAE 90.1 is developed by a designated Project Committee whose membership includes engineers, manufacturers, and architects representing varied interests. SUMF ¶ 135. Each ASHRAE Project Committee, including the 90.1 committee, works with one or more staff liaisons who perform a variety of functions, including organizing committee meetings, recording minutes, recording suggested changes in language, processing committee voting ballots for approval of draft language, and reviewing drafts of standards to make sure they are written consistently and in the proper format. SUMF ¶¶ 137-39. The development of ASHRAE 90.1 is also subject to ASHRAE's public-review process, which is designed to allow

any member of the public to comment on proposed revisions to ASHRAE 90.1, and requires the Project Committee to respond to comments received from members of the public. SUMF ¶¶ 136, 139, 141. ASHRAE staff are also responsible for maintaining and updating several sections of the ASHRAE standards, including a short policy statement at the outset of each standard and guidelines for the public comment procedure on each standard. SUMF ¶ 141.

ASHRAE spends substantial resources drafting and updating its standards. ASHRAE's expenses include employing staff liaisons and other employees who facilitate the standards-creation process, including arranging and paying for committee meetings and collecting public input on standards. SUMF ¶ 152. For ASHRAE 90.1 alone, the updating process involves tens of thousands of man-hours, and ASHRAE spent more than \$1 million to cover standards development in fiscal year 2014. *Id.* ASHRAE relies on the sale of standards to defray the costs of developing and updating its standards. SUMF ¶¶ 153-154.

B. Incorporation by Reference

Governments at all levels — federal, state, and local — from time to time incorporate by reference privately developed standards in statutes and regulations. Each standard at issue here has been incorporated by reference by at least one governmental entity. Federal policy strongly favors incorporation by reference of private sector standards. As explained in the Office of Management and Budget's Circular No. A-119 ("OMB Circular"), incorporation by reference, *inter alia*, saves government the cost of developing standards on its own, provides incentives to establish standards that serve national needs, promotes efficiency and economic competition through harmonization of standards, and furthers the federal policy of relying on the private sector to meet government needs for goods and services. OMB Circular NO. A-119, 63 Fed. Reg. 8546 (Revised Feb. 10, 1998), *available at* https://www.whitehouse.gov/omb/circulars_a119/. Federal law requires that materials

incorporated by reference in the Federal Register must be “reasonably available to the class of persons affected.” 5 U.S.C. § 552(a)(1); 1 C.F.R. § 51.7(a)(3). The regulations specify that (i) a copy of the incorporated material must be on file with the Office of the Federal Register and (ii) the regulations incorporating such material must state the ways those incorporated materials are reasonably available to interested parties. 1 C.F.R. §§ 51.3, 51.5. The regulations do not require that such materials be available to the public at no cost.

State and local governments also incorporate by reference standards and reap similar benefits from this system, including achieving uniformity across state lines and avoiding the cost to governments of developing their own standards. No state or local government requires materials incorporated by reference to be available to the public at no cost.

C. Plaintiffs’ Standards Are Widely Available to the Public.

All Plaintiffs make their standards available to the public in multiple formats and through multiple distribution channels. First, members of the public can purchase copies of the standards, in hard copy or digital format, and on one-off or subscription bases. SUMF ¶¶ 57, 99, 157. Plaintiffs sell copies of standards at reasonable cost. For example, individual NFPA standards sell in the range of \$39-\$105. SUMF ¶ 99. ASTM sells its standards individually in the range of \$38-\$89 per work. SUMF ¶ 58. ASTM provides discounts to its standards for students. SUMF ¶ 62. ASHRAE also sells hard-copy and digital versions of its standards. SUMF ¶ 157. ASHRAE standards are typically priced between \$25 and \$120, with none priced above \$200. SUMF ¶ 158. ASHRAE discounts these prices for libraries, educational institutions, government entities, and individuals or entities that purchase the standards on a subscription basis. SUMF ¶ 160.

Second, Plaintiffs make the Works available for free viewing by the public on their websites — in a read-only format. SUMF ¶¶ 64, 100, 161. Hence, any member of the public

who wants *to read* Plaintiffs' incorporated standards can do so — at no cost — simply by going to Plaintiffs' websites. Persons that want *to copy* or *distribute copies* of the standards pay for that right or obtain a license. Each Plaintiff publicizes the fact that it provides free read-only access to its standards. SUMF ¶¶ 66, 101. Each Plaintiff also ensures that the public can easily search its website to find and review standards. For example, NFPA has partnered with state governments to create an online widget that can be linked from the relevant state agency's website to the relevant standard when a standard is incorporated by reference. SUMF ¶ 101. During the notice and comment period for proposed federal regulations, upon request by the applicable federal agency, Plaintiffs also provide free, read-only access to standards that are incorporated by reference in proposed regulations. SUMF ¶ 67.

Plaintiffs also make their standards reasonably available to the public in other ways. Plaintiffs routinely grant permission to researchers, academics and others to reproduce their standards in part or in whole at no cost for non-commercial purposes. SUMF ¶¶ 68, 103. Additionally, ASTM will provide copies of its standards at reduced (or in some cases no) cost upon request if the regular cost is a burden to the party making the request. SUMF ¶ 61.

II. DEFENDANT'S UNAUTHORIZED COPYING AND DISTRIBUTION OF PLAINTIFFS' STANDARDS

Defendant is a corporation founded and run by Carl Malamud, who is its President and sole employee. SUMF ¶ 163. It does not claim that it needs access to any of Plaintiffs' standards in order to comply with government regulations that reference Plaintiffs' standards. Instead, Defendant seeks the right to post copies of Plaintiffs' standards on its website so that others can copy, distribute or make derivative works of Plaintiffs' standards for free.

Defendant has engaged in extensive public advocacy before Congress and various offices of the executive branch, including the Office of the Federal Register and the Administrative

Conference of the United States, seeking either the passage of a statute or a change in federal regulations to mandate that standards lose their copyright protection when they are incorporated by reference. SUMF ¶¶ 172-74. Those efforts have been unsuccessful. SUMF ¶ 175.

In December 2012, Defendant began posting copies of Plaintiffs' standards on its website. Defendant made copies in two ways. First, Mr. Malamud simply scanned the paper copies into PDFs, added a cover page, used optical character recognition software to convert the images of the scanned pages into text and posted the PDFs, including the text created by the optical character recognition software, on Defendant's website. SUMF ¶¶ 182-87. Defendant also posted many of these standards to the Internet Archive website. SUMF ¶ 185. Second, Defendant hired two companies, HTC Global and Point.B Studio, to reformat some of Plaintiffs' standards into HTML format. SUMF ¶¶ 188, 189, 197, 198. Although it had changed the documents without Plaintiffs' authorization, Defendant placed Plaintiffs' trademarks on its "re-keyed" versions of Plaintiffs' standards and posted them on Defendant's website. SUMF ¶¶ 201, 210. Any member of the public, without limitation, could freely download, copy, and print these versions of Plaintiffs' standards from Defendant's website and the Internet Archive website. SUMF ¶¶ 202, 209.

Defendant also has openly attempted to compete with Plaintiffs' authorized distribution channels. For example, Defendant attempted to drive traffic to its website, including by engaging in "search engine optimization" to appear higher in Google search results in an attempt to attract visitors. SUMF ¶ 226. Defendant also has engaged in fundraising efforts based on its posting of Plaintiffs' standards or its plans to post Plaintiffs' standards. SUMF ¶¶ 225, 227-28. In one such solicitation, Mr. Malamud told a potential funder that one of Defendant's goals is to "have more users" than the "SDO-provided websites," and "to be No. 1 in the marketplace."

SUMF ¶ 225. In contrast with its earlier efforts to promote legislation depriving Plaintiffs of their copyrights in their privately developed standards, Defendant also has publicly declared that Plaintiffs' standards are in the public domain and cannot be copyrighted, and has encouraged members of the public to download them from Defendant's website without paying for them.

SUMF ¶ 224. To date, as a direct result of Defendant's actions, Plaintiffs' standards have been downloaded tens of thousands of times from Public.Resource.Org and Internet Archive websites.

SUMF ¶¶ 241-43. The 2011 NEC alone was downloaded 30,350 times from the Internet Archive through February 2015. SUMF ¶242.

ARGUMENT

I. STANDARD FOR SUMMARY JUDGMENT

A motion for summary judgment should be granted upon a showing "that there is no genuine dispute as to any material fact." Fed. R. Civ. P. 56; *see also Anderson v. Liberty Lobby, Inc.*, 477 U.S. 242, 247 (1986); *Holcomb v. Powell*, 433 F.3d 889, 895 (D.C. Cir. 2006). The mere existence of some factual dispute between the parties does not defeat summary judgment; rather, the dispute must be both "material," meaning that "a dispute over it might affect the outcome of a suit," and "genuine," meaning that "a reasonable jury could return a verdict for the nonmoving party." *Holcomb*, 433 F.3d at 895 (quoting *Anderson*, 477 U.S. at 248). On a motion for summary judgment, each party has the burden "to make a sufficient showing on an essential element of her case with respect to which she has the burden of proof." *Celotex Corp. v. Catrett*, 477 U.S. 317, 323 (1986).

II. PLAINTIFFS ARE ENTITLED TO SUMMARY JUDGMENT ON THEIR COPYRIGHT INFRINGEMENT CLAIMS.

"A plaintiff seeking to establish copyright infringement must prove '(1) ownership of a valid copyright, and (2) copying of constituent elements of the work that are original.'" *MOB*

Music Publ'g v. Zanzibar on the Waterfront, LLC, 698 F. Supp. 2d 197, 201-02 (D.D.C. 2010) (quoting *Stenograph LLC v. Bossard Assocs., Inc.*, 144 F.3d 96, 99 (D.C. Cir. 1998)). The undisputed facts show that Plaintiffs satisfy both elements. Defendant cannot carry its burden of proof on any of its affirmative defenses. Plaintiffs therefore are entitled to summary judgment.

A. Defendant Reproduced, Distributed and Displayed the Works and/or Created Derivative Works Based on the Works Without Authorization.

Defendant cannot and does not contest that it “copied” the Works. For these purposes, “copying” means exercising any of the exclusive rights that 17 U.S.C. § 106 vests in Plaintiffs as owners of the copyright. *See Call of the Wild Movie, LLC v. Does*, 770 F. Supp. 2d 332, 351 (D.D.C. 2011). Here, Defendant infringed several of Plaintiffs’ exclusive rights.

Defendant infringed Plaintiffs’ exclusive rights of reproduction under § 106(1) when it scanned Plaintiffs’ Works into digital formats and when it created HTML versions of the Works. *See Authors Guild, Inc. v. Google, Inc.*, 954 F. Supp. 2d 282, 289 (S.D.N.Y. 2013) (digitally reproducing paper books constitutes reproducing under § 106(1)), *aff’d*, 804 F.3d 202, (2d Cir. 2015).²

Defendant infringed Plaintiffs’ exclusive rights to distribute copies of and to display the Works under § 106(3) and (5), when it uploaded the Works to its own website and third-party websites for members of the public to download at will — which they have done tens of thousands of times. *See A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1014 (9th Cir. 2001) (uploading digital files for others to copy violates distribution right); *Authors Guild*, 954 F. Supp. 2d at 289 (making digital copies of books available for download constitutes distribution under § 106(3) and displaying portions of the books to the public constitutes display under § 106(5)).

² Evidence establishing Defendant’s infringement of the exclusive rights of copyright owners are listed in Plaintiffs’ Statement of Undisputed Facts ¶¶ 178-209.

Defendant's uploading process also recast the Works into different forms, thereby infringing Plaintiffs' exclusive rights under § 106(2) to create derivative works based on the Works. *See* 17 U.S.C. § 101 ("derivative work" includes any form in which a work "may be recast, transformed, or adapted").

Defendant admittedly did not seek or obtain Plaintiffs' consent prior to exercising any of these exclusive rights. SUMF ¶ 203.

B. Plaintiffs Own Valid Copyrights in the Works.

Because it does not, and cannot, dispute that it copied Plaintiffs' Works, Defendant seeks to avoid liability by challenging Plaintiffs' ownership of the copyrights in the Works. However, it is undisputed that Plaintiffs are the duly registered owners of the copyrights in the Works. SUMF ¶¶ 71-76, 120-21, 146. Plaintiffs' registration certificates create a presumption that Plaintiffs are the lawful owners of copyright in the Works. 17 U.S.C. § 410(c); *DSMC, Inc. v. Convera Corp.*, 479 F. Supp. 2d 68, 81-82 (D.D.C. 2007).³ These registrations also create a presumption of the validity of the copyrights. *Stenograph*, 144 F.3d at 99. Defendant has the burden to overcome Plaintiffs' presumption of ownership.

Defendant cannot meet that burden. In discovery, Defendant undertook a quixotic campaign looking for holes in Plaintiffs' ownership claims. Defendant's theory — which Plaintiffs fully expect it to reprise in its responsive brief — was that, unless each Plaintiff could show iron-clad proof of ownership of the contributions of every one of the thousands of individuals who contributed in any way to the Works, Plaintiffs would have zero ability to sue Defendant for copyright infringement.

³ NFPA and ASHRAE's registrations and two of ASTM's registrations were effective within five years of first publication of the Works. For the two ASTM Works that were registered more than five years after the date of first publication, the Court has discretion to determine how much weight to accord the certificates of registration. 17 U.S.C. § 410(c); *DSMC, Inc. v. Convera Corp.*, 479 F. Supp. 2d 68, 81-82 (D.D.C. 2007).

Defendant's theory is flatly wrong, both on the facts and as a matter of basic copyright law. There is no legitimate factual dispute that Plaintiffs own 100% of the Works as the organizational authors who oversee the development of the Works, *see Veeck v. Southern Bldg. Code Cong. Int'l, Inc.*, 293 F.3d 791, 794 (5th Cir. 2003) (*en banc*), and because all contributors are either employees of Plaintiffs or are required to assign the copyright in their contributions to Plaintiffs. Prior to filing this lawsuit, Defendant itself had no quarrel with that proposition. It readily and publicly admitted that Plaintiffs authored the Works. SUMF ¶¶ 205-06. What is more, neither Plaintiffs nor Defendant is aware of a single person or entity — anywhere — other than Plaintiffs that has ever claimed to have *any* ownership interest in any of the Works. SUMF ¶¶ 26, 122, 145, 170.

For purposes of this case and this motion, however, Plaintiffs do not have to own the copyright in 100% of the Works. Although Plaintiffs do in fact own 100%, as a matter of law each Plaintiff need only have a co-ownership of the copyright in order to sue Defendant for infringement. *Davis v. Blige*, 505 F.3d 90, 98 (2d Cir. 2007). In other words, to rebut the presumption of ownership the certificates create, Defendant cannot simply show that 1%, 50% or even 75 % of the copyright in a Work is owned by someone other than the Plaintiff listed in the certificate. Defendant has to show that *100% of the copyright* is owned by other parties.

Defendant cannot come close to meeting that burden. The undisputed evidence shows that each work is a “joint work,” *i.e.*, “a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole.” 17 U.S.C. § 101. “The essence of joint authorship is a joint laboring in furtherance of a preconcerted common design.” 1 Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* § 6.03 (Matthew Bener & Co. 2015). The authors to a single work can be joint authors even if

their contributions are unequal. *Id.* at § 6.07; *Maxwood Music Ltd. v. Malakian*, 713 F. Supp. 2d 327, 344 (S.D.N.Y. 2010). At a minimum, the Works are quintessential joint works, having been drafted, edited, and revised all for the common purpose of creating an integrated, unified standard. SUMF ¶¶ 30, 33, 34, 36, 109, 114, 117, 135-37.

Each of the co-authors of a joint work owns the copyright in the complete work and, in the absence of any assignment of those rights, can exercise any of the rights of ownership, including bringing a suit for infringement of the copyright by a third party and assigning its copyright to another person. *Davis*, 505 F.3d at 98 (likening co-ownership of copyright to tenancy in common); *Brownmark Films, LLC v. Comedy Partners*, 800 F. Supp. 2d 991, 997 (E.D. Wis. 2011) (assignee not required to have been assigned copyright by all co-owners of a copyright to have standing to sue for infringement). As noted, the undisputed evidence demonstrates that Plaintiffs own not just 1% but all or substantially all of the copyright in each of their respective Works. Some of the thousands of contributors of copyrighted expression to each Plaintiff's Works worked for that Plaintiff and made his/her contributions in the course and scope of his/her employment responsibilities, *i.e.*, that person's contribution was a "work made for hire." *See* 17 U.S.C. § 201(b); *Roeslin v. District of Columbia*, 921 F. Supp. 793, 797 (D.D.C. 1995); SUMF ¶¶ 34-35, 117, 137-39, 141. Additionally it is the policy of each Plaintiff to obtain written copyright assignments from each contributor to the Works, *see* 17 U.S.C. § 201(d)(2), and Plaintiffs in fact obtained these assignments from the contributors. SUMF ¶¶ 18-25; 112-15, 143-44. And, as a third-party challenger without any claim to ownership of the copyrights at issue, Defendant does not have standing to attack the validity of assignments from contributors to Plaintiffs. *See, e.g., Billy-Bob Teeth v. Novelty, Inc.*, 329 F.3d 586, 592-93 (7th Cir. 2003) (alleged infringer did not have standing to challenge the assignment of a copyright when the

alleged infringer did not claim to be the owner of the copyright); *Eden Toys, Inc. v. Florelee Undergarment Co.*, 697 F.2d 27, 32 (2d Cir. 1982) (same); *Hart v. Sampley*, Civ. A. No. 91-3068 (CRR), 1992 WL 336496, at *1 (D.D.C. June 24, 1992) (same). Thus, Plaintiffs are indisputably at least co-owners of the copyrights in the Works and therefore have the requisite ownership interest to sue Defendant.

C. All of Defendant’s Affirmative Defenses to Copyright Infringement Are Meritless.

1. The Incorporation of Plaintiffs’ Standards by Reference in Federal, State and Local Statutes and Regulations Does Not Divest Plaintiffs of Copyright in those Standards.

It is undisputed that Plaintiffs’ standards are copyrightable when they are created. The standards at issue here are original works of expression. Mr. Malamud himself has acknowledged that the standards “have a strong copyright interest” until they are “incorporated by reference in the Code of Federal Regulations.” SUMF ¶ 171. In other words, Defendant’s primary defense of its conduct in copying Plaintiffs’ standards is that those standards somehow lost their copyright protection when federal, state or local government entities incorporated the standards by reference in regulations or statutes. In Defendant’s view, that incorporation by reference places them in the public domain because they become “the law.”

Defendant’s argument finds no support in the Copyright Act or in other federal statutes dealing with the incorporation of standards by reference, which manifest a clear congressional intent that standards incorporated by reference in statutes and regulations do not thereby lose their copyright. In addition, both the Office of Management and Budget (“OMB”) and the Office of the Federal Register (“OFR”) have concluded that standards development organizations retain the copyright in their standards as a matter of law.

Nor does the case law support Defendant's position. Both the Ninth Circuit and the Second Circuit have ruled that incorporation by reference of a work in government regulations does not cause that work to lose copyright protection. *Practice Mgmt. Info. v. American Med. Ass'n*, 121 F.3d 516, 520 (9th Cir. 1997) ("*Practice Management*"), *amended on other grounds*, 133 F.3d 1140 (1998); *CCC Info. Servs., Inc. v. Maclean Hunter Mkt. Reports, Inc.*, 44 F.3d 61, 74 (2d Cir. 1994) ("*CCC*"). Defendant primarily relies on the closely divided decision in *Veeck*, 293 F.3d 791, which held that model codes that had been adopted into law were not copyright-protected. But the majority opinion in *Veeck* took pains to limit its holding to the facts of that case, which are readily distinguishable from the facts here. And to the extent there is any tension in the case law, the Ninth Circuit and Second Circuit's opinions are far more persuasive than *Veeck*.

Finally, public policy weighs heavily in favor of Plaintiffs in this case. The undisputed evidence shows that Plaintiffs depend on the revenue they receive from the sale of copyrighted standards to maintain their highly resource-intensive standards development processes, and that local, state and federal governments as well as industry rely on the continued development and updating of Plaintiffs' standards. This case is a paradigmatic example of a situation in which protection of copyright is needed to fulfill the constitutional purpose of copyright, "to promote the progress of science and useful arts." U.S. Const. art. I, § 8, cl. 8.

a. The Copyright Act and Other Federal Statutes Indicate that Congress Did Not Intend Incorporation by Reference to Destroy Copyright.

Deciding whether Plaintiffs' works lose copyright protection upon being incorporated by reference is first and foremost a matter of statutory interpretation. Nothing in the Copyright Act itself suggests that copyrights in standards are terminated if the standards are incorporated by reference in a statute or regulation. On the contrary, the Act provides that copyright in a work

“vests initially in the author or authors of the work.” 17 U.S.C. § 201(a). The Act contains various provisions regarding how copyright can be divested, such as provisions governing the transfer of copyrights, *e.g.*, § 204, and the expiration of copyrights, *e.g.*, § 302, but it contains no suggestion that a copyright is somehow terminated or divested by the work being incorporated by reference.

Other provisions of the Copyright Act and their legislative history further undermine Defendant’s argument. The Act addresses the relationship between action by the federal government and copyright protection, and in doing so it draws a distinction between works created by the government and works created by private authors. It provides that copyright protection “is not available for any work of the United States Government, but the United States Government is not precluded from receiving and holding copyrights transferred to it by assignment, bequest, or otherwise.” 17 U.S.C. § 105. In commenting on this provision before the Act was passed, the House Committee on the Judiciary explained that “publication or other use by the Government of a private work ***would not affect its copyright protection in any way.***” H.R. Rep. No. 94-1476, 94th Cong., 2d Sess., at 60 (1976) (emphasis added). Congress did not intend that federal regulatory incorporation by reference of copyrighted works would destroy the copyright in those works.

Subsequent federal statutes confirm that incorporation by reference does not destroy copyright. For example, in 1991 Congress passed P.L. 102-245, requesting the National Research Council to conduct a study on standards development. *See* National Research Council, *Standards, Conformity Assessment, and Trade into the 21st Century* vii (National Academy Press 1995), available at <http://www.nap.edu/read/4921/chapter/1>. That study contained a detailed overview of the U.S. standards-development system, and specifically noted that many standards

developers “offset expenses and generate income through sales of standards documents, *to which they hold the copyright*.” For many SDOs, publishing is a significant source of operating revenue.” *Id.* at 32 (emphasis added). The study concluded that the “U.S. standards development system serves the national interest well” by “support[ing] efficient and timely development of product and process standards that meet economic and public interests.” *Id.* at 157. The study recommended that Congress pass a law to promote the use of privately developed voluntary consensus standards by federal agencies, and in response Congress passed the National Technology Transfer and Advancement Act of 1995 (“NTTAA”), Pub. L. No. 104-113 § 12(d), 110 Stat. 775, codified at 15 U.S.C. § 272. The Act declares that “all Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus bodies, using such technical standards as a means to carry out policy objectives or activities.” *Id.*

Pursuant to the NTTAA, the OMB has issued guidelines for the use of privately developed voluntary consensus standards, and those guidelines provide that when an agency incorporates a standard by reference, “your agency must observe and protect the rights of the copyright holder and any other similar obligations.” OMB Circular NO. A-119, 63 Fed. Reg. 8546, 8554-55, available at https://www.whitehouse.gov/omb/circulars_a119.

Recently, OFR reaffirmed that federal law protects the copyrights of standards development organizations after incorporation by reference. OFR received a petition signed by Mr. Malamud, among others, asking OFR to require that all material incorporated by reference be made available for free online, and conducted a rulemaking on the proposal. *See* Incorporation by Reference, A Proposed Rule, Office of the Federal Register, 77 Fed. Reg. 11414 (Feb. 27, 2012), available at <https://federalregister.gov/a/2012-4399> (setting out petition

signed by Carl Malamud and others). Following notice and comment, OFR rejected Defendant's proposal as being bad policy and inconsistent with federal law: "If we required that all materials IBR'd into the CFR be available for free, that requirement would compromise the ability of regulators to rely on voluntary consensus standards, possibly requiring them to create their own standards, which is contrary to the NTTAA and the OMB Circular A-119." Incorporation by Reference, Announcement of Final Rule, Office of the Federal Register ("OFR Rule Announcement"), 79 Fed. Reg. 66267, 66268 (Nov. 7, 2014), *available at* <https://federalregister.gov/a/2014-26445>. Likewise, numerous federal agencies have also recently taken the position in communications with Defendant that incorporation by reference of materials into regulations does not destroy the copyright in those materials. *See* SUMF ¶ 177 (citing Sept. 8, 2015 Letter from U.S. Department of Interior; August 6, 2015 Letter from U.S. Department of Housing and Urban Development; and May 18, 2015 Letter from U.S. Consumer Product Safety Commission).

In summary, the plain text of the Copyright Act, its legislative history, and the long history of subsequent action by both Congress, including Congress's refusal to amend the Copyright Act and regulations as Defendant has recommended, and the pertinent federal agencies charged with implementing federal law in this area have uniformly concluded that incorporation of a standard by reference does not terminate the copyright-holder's rights in that standard.

b. The Case Law Does Not Support Defendant's Argument that Incorporation by Reference Destroys Plaintiffs' Copyrights.

In keeping with the statutory framework, the courts have generally rejected arguments that incorporation by reference terminates copyright protection. The Ninth and Second Circuits have expressly held that incorporation by reference does not terminate copyright protection. The

First Circuit has reserved judgment on the question, but a district court in the First Circuit persuasively held that copyright protection continues even after incorporation by reference. The only case regarding incorporation by reference that Defendant relies upon is the Fifth Circuit's decision in *Veeck*. *Veeck*, however, expressly stated that it did not apply to cases like this one, and its reasoning is unpersuasive in any event.

The Ninth Circuit's *Practice Management* decision contains the best discussion of copyright for standards incorporated by reference into regulations. The American Medical Association ("AMA") had developed a copyrighted coding system to enable doctors and other health care workers to identify medical procedures through reference to the AMA's codes for those procedures. *Practice Management*, 121 F.3d at 517. The Health Care Financing Association, the federal agency charged with administering Medicaid reimbursements, incorporated the AMA coding system by reference into its regulations, and "adopted regulations requiring applicants for Medicaid reimbursement to use" the AMA's codes for each particular procedure. *Id.* at 518. An AMA competitor sought to publish those codes, and it made the same argument that Defendant makes in this case. The defendant argued that the code "became uncopyrightable law when HCFA adopted the regulation mandating [its] use." *Id.* The court rejected that argument, however, and held that the code continued to be protected by copyright even after incorporation by reference. *Id.* at 520.

The court grounded its reasoning first and foremost in the core constitutional purpose of copyright, which is to "promote the progress of science and the useful arts." *See Practice Management*, 121 F.3d. at 518. As the court recognized, that purpose is served by preserving the copyright in standards, which provides an important economic incentive for standards development organizations to create these standards in the first place. "To vitiate copyright, in

such circumstances, could, without adequate justification, prove destructive of the copyright interest, in encouraging creativity,’ a matter of particular significance in this context because of ‘the increasing trend toward state and federal adoptions of model codes.’” *Id.* (quoting 1 Melville B. Nimmer & David Nimmer, *Nimmer on Copyright* § 5.06[C], at 5-92 (1996)).

The court also relied on the reasoning of *Banks v. Manchester*, 128 U.S. 244 (1888). In *Banks*, the Supreme Court held that a court reporter could not assert copyright in state judicial opinions because the reporter “was not the author” of the opinions. *Id.* at 252-53. In the course of reaching that decision, the court also considered whether the judges who authored the opinions had a copyright interest, and recognized that “[t]he question is one of public policy.” *Id.* at 253. As the Ninth Circuit recognized in *Practice Management*, the *Banks* Court identified two reasons for concluding that it was against public policy to give judges a copyright interest in their opinions, and neither reason applies to privately developed standards that are incorporated by reference. The first reason was that “the public owns the opinions because it pays the judges’ salaries.” *Practice Management*, 121 F.3d at 518 (citing *Banks*, 128 U.S. at 253). This reason clearly does not apply to privately developed codes and standards. On the contrary, private standards are a prime example of the need for copyright protection because “copyrightability of the [code] provides the economic incentive for the [standards development organization] to produce and maintain [it].” *Id.*

The second reason for the Supreme Court’s holding in *Banks*, the Ninth Circuit recognized, was “the due process requirement of free access to the law.” *Id.* at 519. But that requirement would only become relevant if there were “evidence that anyone wishing to use the [code] has any difficulty obtaining access to it.” *Id.* Because anyone could easily access the code at issue in *Practice Management* by purchasing it from the AMA, the court recognized that

there was no basis for refusing to recognize copyright. *Id.* In this case, Plaintiffs' standards are even more accessible to the public than the codes considered in *Practice Management*, because, in addition to selling the Works, Plaintiffs have voluntarily undertaken to provide the public with free internet access to the Works. SUMF ¶¶ 63-67, 100-01, 161.

Likewise, in *CCC* the Second Circuit held that state regulations' incorporation by reference of the Red Book, which provides automobile valuations, did not destroy the copyright in that work. 44 F.3d at 73 ("We are not prepared to hold that a state's reference to a copyrighted work as a legal standard for valuation results in loss of the copyright."). Several states' regulations referenced the Red Book as one source of determining the insurance payment for a total loss. *Id.* The court explicitly rejected the argument that the public must have "free access to the content of the laws that govern it," because this would require the elimination of copyright protection and would "prove destructive of the copyright interest in encouraging creativity." *Id.* at 73-74 & n. 30 (quotation marks omitted).

In an earlier case, the First Circuit expressed uncertainty about whether codes and standards lose their copyright on being incorporated by reference, and remanded to the district court for full briefing on the question. *Bldg. Officials & Code Adm. v. Code Tech., Inc.*, 628 F.2d 730, 736 (1st Cir. 1980) ("The question is not only of first impression but may be of importance in view of a possible trend towards state and federal adoption, either by means of incorporation by reference or otherwise, of model codes."). More recently, however, a district court in the First Circuit concluded that the reasoning of *Practice Management* and *CCC* was convincing. That court held that "the balance of competing interests at stake in such cases favors preserving copyright protection for works incorporated by reference into public enactments." *John G. Danielson, Inc. v. Winchester-Conant Properties, Inc.*, 186 F. Supp. 2d 1, 22 (D. Mass.

2002). The First Circuit affirmed on other grounds and noted that the question of copyright protection for works incorporated by reference remains open in that circuit. *John G. Danielson, Inc. v. Winchester-Conant Properties, Inc.*, 322 F.3d 26, 39 (1st Cir. 2003).

Defendant relies heavily — indeed, almost exclusively — on an opinion that embraced neither the restraint of the First Circuit in *John G. Danielson* nor the careful reasoning of the Second and Ninth Circuits in *CCC* and *Practice Management*. Defendant’s centerpiece precedent is Judge Jones’s majority opinion for a sharply divided Fifth Circuit in *Veeck*. That opinion, however is distinguishable on its own terms and is not persuasive in its extreme views.

The plaintiff in *Veeck* was SBCCI, an organization that created a set of five “model building codes” known collectively as the Standard Building Codes. *Veeck v. Southern Bldg. Code Cong. Int’l, Inc.*, 49 F. Supp.2d 885, 887 (E.D. Tex. 1999). Two small towns in Texas, Anna and Savoy, “enacted ordinances adopting [these] model codes by reference.” *Id.* The operator of a website purchased copies of these codes and posted them on his website, and SBCCI brought a copyright infringement claim. *Id.* By a 9-6 vote, the *en banc* Fifth Circuit held that under the particular circumstances in that case, when the model codes were “adopted by a legislative body and bec[a]me ‘the law’,” they “enter[ed] the public domain and [were] not subject to the copyright holder’s exclusive prerogatives.” *Veeck*, 293 F.3d at 793.

Defendant’s reliance on *Veeck* is unavailing, however. *Veeck* is distinguishable from this case for at least two reasons. First, in response to an amicus brief filed by a number of standard-development organizations (including ASHRAE and NFPA), the *Veeck* majority explained that it was not holding that “copyrights may be vitiated simply by the common practice of governmental entities’ incorporating their standards in laws and regulations.” *Id.* at 803-04. The court distinguished between extrinsic standards, which require citizens “to consult or use a

copyrighted work in the process of fulfilling their obligations” and “the wholesale adoption of a model code.” *Id.* at 804-05. The court explicitly stated: “This case does not involve references to extrinsic standards” and “clarified that “[c]ase law that derives from official incorporation of extrinsic standards is distinguishable in reasoning and result.” *Id.* at 804 (citing *CCC and Practice Management*). Here, using the terminology of *Veeck*, Plaintiffs’ standards at issue are “extrinsic standards” that are referenced in regulations as opposed to being adopted in whole as the law.

Second, the *Veeck* majority noted that the model codes at issue there served “no other purpose than to become law,” and acknowledged that when standards also have other uses, such as being “used by insurance companies and other non-governmental uses,” they do not lose their copyright when they are incorporated by reference. *Id.* at 805. In this case, Plaintiffs’ standards at issue have a range of uses and applications regardless of whether they are incorporated by reference, as they are used by industry, insurance companies, and many others. Moreover, unlike the model codes at issue in *Veeck*, Plaintiffs’ standards here were not developed for the purpose of being incorporated by reference in statutes or regulations. SUMF ¶¶ 54, 90, 134.

Finally, a ruling that standards lose copyright protection upon incorporation by reference in a statute or government regulation would create serious tensions with other areas of law and other provisions of the Copyright Act. Under Defendant’s argument, the Works were protected by copyright prior to their incorporation by reference, but those copyrights somehow evanesced upon their incorporation by reference. The putative disappearance of Plaintiffs’ rights would create several substantial legal issues. First, if Defendant were correct that incorporation by reference of a standard destroys the author’s copyright in that standard, the government that incorporated the standard would have taken Plaintiffs’ property without just compensation.

CCC, 44 F.3d at 74 (“[A] rule that the adoption of such a reference by a state legislature or administrative body deprived the copyright owner of its property would raise very substantial problems under the Takings Clause of the Constitution.”); *Practice Management*, 121 F.3d at 520 (citing CCC for same concern). Any governmental entity that has incorporated a standard by reference could face significant takings liability. This is not a result that any of the federal, state and local governmental entities that have relied for decades on incorporation by reference have either contemplated or welcomed. Under the doctrine of constitutional avoidance, “constitutionally doubtful constructions should be avoided where fairly possible,” *Miller v. French*, 530 U.S. 327, 336 (2000) (quotation marks and citation omitted). The Court should not interpret the Copyright Act as creating the constitutional problems that are implicit in Defendant’s argument. *See, e.g., Fox v. Washington*, 236 U.S. 273, 277 (1915) (“So far as statutes fairly may be construed in such a way as to avoid doubtful constitutional questions they should be so construed.”).

Similarly, the destruction of Plaintiffs’ copyrights based on the incorporation by reference of the Works by a governmental body would constitute an involuntary transfer or divestment of Plaintiffs’ ownership — a result that finds no support in the portions of the Copyright Act dealing with transfer and divestment, as discussed above.

Moreover, applying the rule that “the law” is in the public domain to any materials that are merely referred to in statutes or judicial opinions would undermine authors’ rights in a wide variety of copyrighted materials. For example, many judicial opinions contain citations to treatises, law review articles, and other copyrighted materials. However, this cannot mean that all such materials have lost their copyright. Indeed, courts frequently include quotations of all or part of a copyrighted work in the course of recognizing a plaintiff’s copyright interest in that

work. *E.g.*, *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569 (1994) (reprinting in full the copyrighted lyrics of “Pretty Woman” by Roy Orbison and “Pretty Woman” by 2 Live Crew). No one would suggest that this destroys the copyright in the works being quoted. Or, as the Second Circuit noted in *CCC*, many states have a mandatory school curriculum requiring that students read certain copyrighted books, meaning that “one cannot comply with the legal requirements without using the copyrighted works.” 44 F.3d at 74. Such references do not vitiate the copyright in those works. *Id.*

For these reasons, it is unsurprising that federal regulatory agencies, the leading copyright treatises, and scholarly commentators have either disagreed with *Veeck* or urged that it be read narrowly so as not to apply to other cases of incorporation by reference. *See, e.g.*, OFR Rule Announcement, 79 Fed. Reg. at 66268 (“[W]e noted that recent developments in Federal law, including the *Veeck* decision ... have not eliminated the availability of copyright protection for privately developed codes and standards referenced in or incorporated into federal regulations. Therefore, we agreed with commenters who said that when the Federal government references copyrighted works, those works should not lose their copyright.”); 2 William F. Patry, *Patry on Copyright* §4.84 (West 2015) (arguing that the *Veeck* majority opinion is “deeply flawed” and “should be disapproved of”); 1 *Nimmer on Copyright* § 5.12 (2015) (noting that the *Veeck* majority “took pains to emphasize the limits of its holding,” in order “to allay the fear of amici standards-writing organizations”); Emily S. Bremer, *On the Cost of Private Standards in Public Law*, 63 U. Kan. L. Rev. 279, 293-94 (2015) (noting that *Veeck* was “controversial” and arguing that “[s]tripping copyright protection for incorporated materials is a poor solution to the public access problem”). In keeping with this broad consensus, the Court should recognize that *Veeck*

is not persuasive authority for the issues raised by this case and reject Defendant's arguments about incorporation by reference.

c. Public Policy Strongly Favors Copyright Protection for Plaintiffs' Standards.

The existing standards development system undoubtedly serves the public interest. In its report on the NTTAA, the House Science Committee explained this as follows:

Standards play a crucial role in all facets of daily life and in the ability of the nation to compete in the global marketplace. The United States, unlike the federalized system of most other countries, relies heavily on a decentralized, private sector based, voluntary consensus standards system This unique consensus-based voluntary system has served us well for over a century and has contributed significantly to United States competitiveness, health, public welfare, and safety.

H.R. Rep. No. 104-390, 104th Cong., 1st Sess., pt. VII, § 12, at 23-24 (1995). As explained above, this system of privately developed standards has evolved for over a century, and has been built on the longstanding understanding that standards development organizations can assert copyright in their standards and can fund their continued operations through the sale of those copyrighted standards. To dramatically upend that understanding by holding that a standards development organization may not assert copyright would cause grave damage not only to the standards development organizations themselves but also to the wide array of public and private actors that rely on these standards.

Defendant admits that standards development organizations are essential to the public interest, explaining in a video on its website that NFPA standards, for example, "protect the lives of our volunteer fire fighters" and "protect the lives of our children," and "[i]t's important that organizations like the National Fire Protection Association continue to survive." SUMF ¶ 165. But the undisputed evidence in this case shows that Plaintiffs depend on their copyrights to conduct their operations and to continue to develop and update standards that protect public

safety and promote efficiency. For example, the unrebutted expert economic opinion of John Jarosz concluded that “Plaintiffs require substantial resources to continue their standards development efforts. Revenue generated from the sale of copyrighted standards and downstream products and services based on these copyrighted standards are a key contributor to the resources needed to carry out these functions.” SUMF ¶ 252. Jarosz further concluded that the effect of a loss of copyright protection “will be a likely reduction in the number, quality, and acceptability of critical standards and a likely increase in costs for governments, and therefore, taxpayers. This will cause harm to governments, the public, and industry actors that rely on the creation of these standards as well as to the Plaintiffs.” SUMF ¶ 271.

Jarosz’s conclusions are supported by the undisputed record evidence, which shows that: (i) Plaintiffs’ standards development processes are extremely resource-intensive, SUMF ¶¶ 43-44, 104-05, 152; (ii) Plaintiffs rely heavily on their copyrights to obtain needed revenue, SUMF ¶¶ 45-49, 106-08, 153; and (iii) government and other entities rely on Plaintiffs’ standard development activities and could not replace those activities if Plaintiffs became unable to continue them. SUMF ¶¶ 95-98.

Defendant has been unable to identify any plausible way that standards development could persist if unsupported by revenue obtained from sales of copyrighted standards. SUMF ¶ 255. Indeed, it is unsurprising that Mr. Malamud has privately admitted to his supporters that he avoids discussing how his conduct will affect the business model of standards development organizations, because he “can’t win that discussion” and he instead must take “an absolutist position,” which is “the only way we can possibly win this fight.” SUMF ¶ 256.

There is no reason for this Court to take the “absolutist position” that Defendant needs in order to prevail here. Public policy is an important consideration in copyright law, and the need

to provide a continued incentive for standards development organizations to produce standards in the public interest is a powerful reason to recognize the copyright interests at stake in this case.

2. The “Merger Doctrine” Does Not Excuse Defendant’s Conduct.

Defendant also asserts “merger” as an affirmative defense. The merger doctrine provides that “courts will not protect a copyrighted work from infringement if the idea underlying the copyrighted work can be expressed in only one way.” *Satava v. Lowry*, 323 F.3d 805, 812 n.5 (9th Cir. 2003); *Coquico, Inc. v. Rodriguez-Miranda*, 562 F.3d 62, 68 (1st Cir. 2009). In other words, an author may not obtain copyright protection in a work if the author has merely identified the only way of expressing a particular idea, because that could interfere with the ability of future authors to create works involving the same idea. The work is copyrightable, however, “so long as alternate expressions are available.” *Atari Games Corp. v. Nintendo of Am., Inc.*, 975 F.2d 832, 840 (Fed. Cir. 1992).

The relevant time period at which to assess whether the merger doctrine precludes copyright protection is at the time of original authorship. *Apple Computer, Inc. v. Formula Int’l Inc.*, 725 F. 2d 521, 524 (9th Cir. 1984) (Copyright Act intended “to protect all works of authorship from the moment of their fixation” and “recognizes copyright protection for a work of authorship regardless of the uses to which it may be put.”) (internal citations omitted); *see also Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339, 1361 (Fed. Cir. 2014) (“copyrightability and the scope of protectable activity are to be evaluated at the time of creation, not at the time of infringement.”). Hence, if a work is originally copyrightable, the merger doctrine does not strip the work of copyright protection merely because of the work’s widespread adoption as an industry standard. *Oracle Am., Inc.* at 1372 (“[T]o the extent Google suggests that it was entitled to copy the Java API packages because they had become the effective industry standard, we are unpersuaded.”).

Here, the merger doctrine does not apply because Plaintiffs' Works were original works of expression when they were created, and there is no question that other authors could create alternative expressions of electrical safety standards. For example, NFPA's 2014 NEC is a 900-page standard containing comprehensive guidance for the safe installation of electrical equipment. SUMF ¶¶ 93-94. There are a myriad of other ways in which one could author an electrical safety standard, and NFPA's original authorship in no way interferes with the production of such competing standards. In fact, there are standards written by other organizations that compete with Plaintiffs' Works, such as the International Energy Conservation Code developed by the International Code Council, which addresses similar building efficiency concerns as ASHRAE 90.1. SUMF ¶¶ 38, 133.

Without citing any authority on point, the *Veeck* majority simply concluded that the merger doctrine applied because it was "obvious that for copyright purposes, laws are 'facts.'" *Id.* *Veeck*'s conclusion was far from "obvious." The *Veeck* majority gave no attention to the fact that at the time the plaintiff created the model codes — *i.e.*, at the time that counts for the merger doctrine — those codes were *not* the only way to express the underlying ideas. The *Veeck* majority's analysis of merger is either *ipse dixit* or a recycling of its conclusions about the effect of incorporation by reference. In any case, the majority's reasoning is not persuasive, and this Court should not follow it. *See Veeck*, 293 F.3d at 807 (Higginbotham, J., dissenting) (explaining that majority opinion's discussion of the merger doctrine was "tautological" and "a restatement of the conclusion that adopting the codes invalidated the copyright, not an independent reason why that is so").

3. Defendant's Wholesale Copying of Plaintiffs' Standards and Making Them Available to the Public Is Not Fair Use.

Defendant has also raised the fair use defense to copyright infringement. In considering whether a use is a fair use, the Court should consider the four statutory factors set forth in 17 U.S.C. §107. The task “calls for case-by-case analysis,” and the four statutory factors are “no[t] ... to be treated in isolation, one from another. All are to be explored, and the results weighed together, in light of the purposes of copyright.” *Campbell*, 510 U.S. at 577-78. In this case, the factors weigh strongly against a finding of fair use.

a. The Purpose and Character of the Use

The first factor is “the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes.” 17 U.S.C. §107. Here, Defendant has admitted that the character of its use of Plaintiffs' standards was to make “exact copies” of them. SUMF ¶ 198. Defendant did this in two ways, by scanning the works directly into PDF format and by paying to have them converted into an HTML format. SUMF ¶¶ 182-85, 188-201. Defendant then posted Plaintiffs' works on the internet where any member of the public can freely download them, print them, and make additional copies of them. SUMF ¶ 209. And Defendant's avowed purpose in doing so is to enable members of the public to obtain copies of the standards without buying or licensing them from Plaintiffs. SUMF ¶ 221-24.

When a defendant's use involves wholesale copying and making available copyrighted works to the public, in direct competition with the copyright holder's attempts to sell or license the works, this weighs overwhelmingly against a finding of fair use. *See, e.g., Wall Data Inc. v. Los Angeles Cty. Sheriff's Dept.*, 447 F.3d 769, 778 (9th Cir. 2006) (“In cases where ‘use is for the same intrinsic purpose as [the copyright holder's] ... such use seriously weakens a claimed

fair use.”) (brackets and ellipsis in original, quoting *Worldwide Church of God v. Philadelphia Church of God, Inc.*, 227 F.3d 1110, 1117 (9th Cir. 2000)).

Defendant has argued that its use is “transformative” because it converted some of Plaintiffs’ standards into HTML format. But Defendant admitted that its rekeying of the standards was “simply recover[ing] text,” and that it would only “start adding true value” when it rekeyed mathematical formulas, added section ID headers, and converting the graphics to vector format. SUMF ¶ 196. Courts have uniformly rejected similar arguments and have held that the mere conversion of a work from one format to another does not support a finding of fair use. *See, e.g., Seltzer v. Green Day, Inc.*, 725 F.3d 1170, 1177 (9th Cir. 2013) (“In the typical ‘non-transformative’ case, the use is one which makes no alteration to the *expressive content or message* of the original work.”) (emphasis in original); *Infinity Broad. Corp. v. Kirkwood*, 150 F.3d 104, 108 (2d Cir. 1998) (concluding retransmission of radio broadcast over telephone lines is not transformative); *UMG Recordings, Inc. v. MP3.com, Inc.*, 92 F. Supp. 2d 349, 351 (S.D.N.Y. 2000) (finding reproduction of audio CD into computer MP3 format does not transform the work). And, to the extent that Defendant argues that its conduct is fair use because it is providing the public with access to “the law,” that is simply a restatement of its meritless arguments that Plaintiffs’ standards lost copyright protection when they were incorporated by reference.

To be sure, courts have occasionally recognized the fair-use defense when a defendant made exact copies of a work, but only if the defendant’s use created a new product or service “without providing the public with a substantial substitute for matter protected by the Plaintiffs’ copyrights in the original works.” *Authors Guild*, 804 F.3d at 207. For example, the Second Circuit’s recent decision in *Authors Guild* held that Google’s digital copying of copyrighted

books, to enable the public to search and view snippets of the books, was a fair use. But the court recognized the lengths to which Google went to ensure that the public could not download the books in their entirety, and noted that “[i]f Plaintiffs’ claim were based on Google’s converting their books into a digitized form and making that digitized version accessible to the public, their claim would be strong.” *Id.* at 225-26; *accord Authors Guild, Inc. v. HathiTrust*, 755 F.3d 87, 97 (2d Cir. 2014) (upholding fair-use defense for book-search service after noting that “in providing this service, the [defendant] does not add into circulation any new, human-readable copies of any books”). Here, by contrast, Defendant did exactly what the Second Circuit said would make a plaintiff’s claim “strong” — it created digitized copies of Plaintiffs’ works, which Plaintiffs themselves also provide, and made its copies available to the public without any limitations.

The statute also directs the Court to consider whether the use is of a commercial nature, which weighs against a finding of fair use. *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 562 (1985). This inquiry asks “whether the user stands to profit from exploitation of the copyrighted material without paying the customary price.” *Id.* Here, there is ample evidence that Defendant’s copying of Plaintiffs’ standards enabled it to boost its fundraising efforts. Mr. Malamud wrote in an email to his wife, whom he had hired to assist him in converting Plaintiffs’ standards into HTML format, that she should “make sure we’ve done any NFPA docs Also, we can do any ASTM or ASHRAE docs as well as those are helpful to me in my suit. . . . Definitely keep plowing away on that stuff . . . that’s the kind of output that makes it much easier for me to try and raise money.” SUMF ¶ 230. In another email, Mr. Malamud explained that he could continue paying Ms. Malamud as long as she continued making copies of Plaintiffs’ standards, because “what the funders are going to be looking at is

our walking through the standards.” SUMF ¶ 231. Defendant’s President and only employee, Carl Malamud, has received hundreds of thousands of dollars in salary for his posting of Plaintiffs’ standards, and paid hundreds of thousands of dollars more to his wife for assisting Defendant in converting the standards. SUMF ¶¶ 233-34. In an email, he described his work purchasing Plaintiffs’ standards to post them on the internet as “what a way to make a living.” SUMF ¶ 232. While Defendant is nominally a nonprofit organization, it clearly derives significant financial benefit from its infringing activities, as has its founder and his wife, weighing against a finding of fair use.

b. The Nature of the Copyrighted Work

The second factor is “the nature of the copyrighted work.” 17 U.S.C. § 107. This factor asks whether the work at issue is “close[] to the core of intended copyright protection.” *Campbell*, 510 U.S. at 586. While some courts have suggested that a finding of fair use is more warranted when the work is fictional than factual, the Second Circuit recently disapproved that suggestion, holding that “authors of factual works, like authors of fiction, should be entitled to copyright protection of their protected expression.” *Authors Guild*, 804 F.3d at 220. Here, because Plaintiffs’ works are original and complex works that take a high degree of resources to produce, and because providing an incentive for Plaintiffs to develop and publish these works is manifestly in the public interest, these works are at the core of copyright law, and so this factor weighs in Plaintiffs’ favor. *See Harper & Row*, 471 U.S. at 546 (“It is evident that the monopoly granted by copyright actively served its intended purpose of inducing the creation of new material of potential historical value.”).

c. The Amount and Substantiality of the Work Taken

The third factor is “the amount and substantiality of the work taken.” 17 U.S.C. § 107. This factor clearly weighs in Plaintiffs’ favor, because Defendant admittedly copied and made

available to the public the entirety of Plaintiffs' copyrighted works. "While wholesale copying does not preclude fair use *per se*, copying an entire work militates against a finding of fair use." *Worldwide Church of God*, 227 F.3d at 1118 (quotation marks and citation omitted). And "the fact that a substantial portion of the infringing work was copied verbatim is evidence of the qualitative value of the copied material, both to the originator and to the plagiarist who seeks to profit from marketing someone else's copyrighted expression." *Harper & Row*, 471 U.S. at 565. Here, of course, Defendant's infringing conduct consisted of verbatim copying of the entirety of Plaintiffs' works.

In discussing this factor in *Authors Guild*, the Second Circuit upheld the "snippet view" feature of Google books, but only after concluding that a user of Google's services "cannot succeed, even after long extended effort . . . , in revealing through a snippet search what could usefully serve as a competing substitute for the original." *Authors Guild*, 804 F.3d at 222; *see also id.* at 223 (noting that the third factor would have weighed against Google if the snippet view feature enabled users to view "a coherent block amounting to 16% of a book"). Thus, in a case such as the present one, where Defendant's conduct enables users to access, read, and make copies of Plaintiffs' works in their entirety, the third fair use factor favors Plaintiffs.

d. The Effect of the Use Upon the Potential Market

The fourth factor is the effect of the defendant's use on the potential market for or value of the copyrighted work. 17 U.S.C. § 107. This factor "is of great importance in making a fair use assessment." *Authors Guild*, 804 F.3d at 223. Indeed, "[e]ven if the *purpose* of the copying is for a valuably transformative purpose, such copying might nonetheless harm the value of the copyrighted original if done in a manner that results in widespread revelation of sufficiently significant portions of the original as to make available a significantly competing substitute." *Id.* (emphasis in original). A copyright owner has no obligation to show any actual loss of revenues;

rather, “the court’s role with respect to the fourth factor is to ‘look at the impact on *potential* licensing revenues for traditional, reasonable, or likely to be developed markets.’” *North Jersey Media Grp. Inc. v. Pirro*, 74 F. Supp. 3d 605, 623 n. 20 (S.D.N.Y. 2015) (quoting *Bill Graham Archives v. Dorling Kindersley Ltd.*, 448 F.3d 605, 614 (2d Cir. 2006)) (emphasis in original).

Because Defendant’s use of Plaintiffs’ works involves making entire copies of Plaintiffs’ works available to the public on the internet for free, this factor clearly favors Plaintiffs. According to Defendant, Defendant’s supposed copies of Plaintiffs’ standards downloaded from the internet are extremely close substitutes for authorized copies of Plaintiffs’ standards purchased from Plaintiffs. *See, e.g.*, SUMF ¶ 213 (citing Mr. Malamud’s testimony characterizing PDFs on Defendant’s website as a “scan of the exact standard” and stating that he expects viewers to believe that the text in the HTML versions is the same as the text in Plaintiff’s standards). Thus, the availability of copies on the websites where Defendant posted them poses a clear potential negative effect on the market for the copyrighted works themselves. *See, e.g., BMG Music v. Gonzalez*, 430 F.3d 888, 890 (7th Cir. 2005) (“Music downloaded for free from the Internet is a close substitute for purchased music; many people are bound to keep the downloaded files without buying originals.”).

Defendant admitted that it attempted to drive traffic to its website, including by engaging in “search engine optimization” in connection with its posting of Plaintiffs’ standards to appear higher in Google search results to attract visitors. SUMF ¶ 226. Defendant also informed a potential funder that one of its goals was to “have more users” than the “SDO-provided websites,” and further emphasized that Defendant would “like to be No. 1 in the marketplace.” SUMF ¶ 225.

Defendant has argued that Plaintiffs might benefit from its infringing conduct because it supposedly raises public awareness of Plaintiffs' works, thereby creating a "tremendous market opportunity." SUMF ¶ 238. Defendant has offered no evidence for this theory aside from Mr. Malamud's own self-serving assertions. Plaintiff's expert economist John Jarosz analyzed this theory and concluded that it was entirely unsupported by the evidence. SUMF ¶ 238 (citing Jarosz Expert Rep. ¶¶ 139-41). On the contrary, Mr. Jarosz concluded that "Plaintiffs are likely to stand to lose a majority of their revenue and gross profits from the loss of copyright protection here." SUMF ¶ 156 (citing Jarosz Expert Rep. ¶ 138). And even if there were some evidence for Defendant's "market opportunity" theory, Defendant is not entitled to unilaterally infringe Plaintiffs' copyrights based on his views about what is in Plaintiffs' economic interest.

"Copyright law lets authors make their own decisions about how best to promote their works; copiers ... cannot ask courts (and juries) to second-guess the market and call wholesale copying 'fair use' if they think that authors err in understanding their own economic interests or that Congress erred in granting authors the rights in the copyright statute." *BMG*, 430 F.3d at 891. Clearly, Defendant's infringement undercuts the potential market for the sale of Plaintiffs' works and the Court should reject the fair use defense.

4. Defendant's Other Affirmative Defenses are Meritless

Defendant's Answer and Counterclaim also asserts the affirmative defenses of unclean hands, copyright and trademark misuse, and waiver and estoppel. But Defendant has proffered no basis for asserting these defenses and even failed to provide evidence in support of the misuse and waiver defenses in response to Plaintiffs' contention interrogatories concerning these defenses. SUMF ¶ 237. This alone demonstrates that Defendant has forfeited these throw-away defenses. *See, e.g., Zenith Elecs Corp. v. WH-TV Broad. Corp.*, 395 F.3d 416, 420 (7th Cir. 2005) (affirming exclusion of damages theory based on party's "fail[ure] to respond to [the]

contentions interrogatory with a description of its damages theory and the proof to be employed”). In addition, each of the three defenses is a particularly ill fit to the facts in this case.

Unclean Hands: This defense applies where a plaintiff commits a wrongful act that has a strong factual nexus to the defendant’s infringing conduct. *Nat’l Cable Television Ass’n, Inc. v. Broad. Music, Inc.*, 772 F. Supp. 614, 652 (D.D.C. 1991); *Mitchell Bros. Film Grp. v. Cinema Adult Theater*, 604 F.2d 852, 863 (5th Cir. 1979). Examples include when “plaintiff misused the process of the courts by falsifying a court order, by falsifying evidence, or by misrepresenting the scope of his copyright to the court and opposing party.” 4 *Nimmer on Copyright*, § 13.09[B] (2015). There is absolutely no evidence that such conduct occurred here.

Misuse: This defense applies where a plaintiff uses its copyright “to secure an exclusive right or limited monopoly not granted by the Copyright office and which is contrary to public policy to grant.” *AAMC v. Princeton Review, Inc.*, 332 F. Supp. 2d 11, 17-19 (D.D.C. 2004). Misuse typically arises due to some form of anticompetitive conduct, and “failure to show [a] violation of the antitrust laws makes it more difficult for the court to find copyright misuse.” *Id.* at 19 (quotation marks omitted); *see also Nat’l Cable Television*, 772 F. Supp. at 652.

Defendant’s failure to offer one iota of evidence of anticompetitive conduct dooms this defense.

Waiver and Estoppel: These defenses apply if a plaintiff expressly waives its rights or intentionally acts in a manner that leads defendant to believe its conduct is acceptable or will not be acted upon by plaintiff. *Tech 7 Sys., Inc. v. Vacation Acquisition, LLC*, 594 F. Supp. 2d 76, 85-86 (D.D.C. 2009); *Slate v. Am. Broad. Cos.*, 941 F. Supp. 2d 27, 40-41 (D.D.C. 2013). No evidence of this exists here. In fact, each Plaintiff affixed its copyright notices on its standards to indicate copyright protection, SUMF ¶¶ 40, 102, 147, and Mr. Malamud himself publicly stated that the standards he is posting are “heavily copyrighted” and acknowledged that “the standards

bodies were very aggressive in claiming copyright on those documents.” SUMF ¶ 171.

Defendant cannot credibly claim that Plaintiffs led him to believe his actions were acceptable to them.

III. PLAINTIFFS ARE ENTITLED TO SUMMARY JUDGMENT ON THEIR CLAIMS OF TRADEMARK INFRINGEMENT AND FALSE DESIGNATION OF ORIGIN.

In addition to its willful infringement of Plaintiffs’ copyrights, Defendant also infringed Plaintiffs’ trademarks. Defendant started with genuine versions of Plaintiffs’ standards and then added content and/or retyped the content to create new documents that Plaintiffs did not authorize and over which Plaintiffs did not exercise quality control. SUMF ¶¶ 187-95. In fact, Defendant made the decision to sacrifice the quality of the copies its agents made based on cost considerations. SUMF ¶ 191. Defendant then brazenly placed Plaintiffs’ trademarks back on those documents and identified the documents as authentic versions of Plaintiffs’ standards. SUMF ¶¶ 210-13. These actions constitute trademark infringement and false designation of origin.

To prevail on their claim of trademark infringement, Plaintiffs must show (1) that they own valid trademarks; (2) their trademarks are distinctive or have acquired secondary meaning; and (3) that there is a substantial likelihood of confusion between the Plaintiffs’ marks and the marks used by Defendant. *AARP v. Sycle*, 991 F. Supp. 2d 224, 229 (D.D.C. 2013). The standard for analyzing Plaintiffs’ unfair competition and false designation of origin and common law trademark infringement claims is the same as that for the trademark infringement claim. *Id.*

A. Plaintiffs Own Valid Trademarks that are Distinctive or Have Acquired Secondary Meaning.

Plaintiffs own valid trademarks in the trademarks they asserted in this action. Plaintiffs have U.S. federal trademark registrations for each of the asserted marks. SUMF ¶¶ 77-79, 123-26, 148-51. Plaintiffs’ federal registrations for the majority of the asserted marks are

incontestable and so constitute conclusive evidence of the validity of the marks (i.e., that the mark is either inherently distinctive or has acquired secondary meaning) and of the registrant's ownership of the mark. 15 U.S.C. § 1115(b); *Park 'N Fly, Inc. v. Dollar Park and Fly, Inc.*, 469 U.S. 189, 196 (1985). The marks that are not incontestable are presumed to be inherently distinctive because they were registered without proof of secondary meaning. *Zobmondo Entm't, LLC v. Falls Media, LLC*, 602 F.3d 1108, 1113-14 (9th Cir. 2010).

B. Defendant's Use of Plaintiffs' Trademarks Creates a Likelihood of Confusion.

To determine whether there is a likelihood of confusion, the relevant question is whether "an appreciable number of ordinarily prudent customers are likely to be misled, or simply confused, as to the source" of the standards Defendant posted. *See Globalaw Ltd. v. Carmon & Carmon Law Office*, 452 F. Supp. 2d 1, 47 (D.D.C. 2006) (quotation marks and citations omitted). If use of the Plaintiffs' registered marks is likely to confuse consumers into believing that the standards Defendant posted are somehow associated with Plaintiffs or to cause consumers to mistake the standards Defendant posted for authentic standards published by Plaintiffs, the requirements for finding a likelihood of confusion are satisfied. *See Am. Ass'n for the Advancement of Science v. Hearst Corp.*, 498 F. Supp. 244, 258 (D.D.C. 1980).

The factors the Court may consider in determining whether confusion is likely include: the similarity of the marks; the proximity of the parties' products; the strength of Plaintiffs' marks; the intent of Defendant in adopting its mark; and evidence of actual confusion. *Globalaw*, 425 F. Supp. 2d at 48. Where the defendant uses an identical mark in connection with a similar product, it is not necessary to consider all factors to determine that confusion is inevitable. *See, e.g., Int'l Cosmetics Exch., Inc. v. Gapardis Health & Beauty, Inc.*, 303 F.3d 1242, 1248-49 (11th Cir. 2002) (holding that use of identical mark on similar product was

sufficient to demonstrate a likelihood of confusion); *Wynn Oil Co. v. Thomas*, 839 F.2d 1183, 1190-91 (6th Cir. 1988) (“[S]ince both marks use absolutely identical language to sell a nearly identical service, the likelihood of confusion must be considered great.”).

1. Members of the Public Are Likely to Believe that the Materials Defendant Posted are Genuine Versions of Plaintiffs’ Standards.

Members of the public are likely to be confused because Defendant uses word marks and logos that are identical to Plaintiffs’ word marks and logos in connection with standards that Defendant purports to be exact copies of Plaintiffs’ standards. SUMF ¶¶ 210-13. Specifically, Defendant used Plaintiffs’ marks on the copies of Plaintiffs’ standards that Defendant created and posted on its website and on the Internet Archive website. *Id.* Additionally, Defendant used certain of Plaintiffs’ marks within tables it created on its own website and within fields it created on the Internet Archive website when identifying the authors and names of the standards. SUMF ¶ 211.

Defendant’s goal is to make the logos used on the standards and the contents of the standards as close as possible to the actual standards published by Plaintiffs. SUMF ¶ 212. Defendant intends for people who view each standard posted on its website and/or the Internet Archive to think it is “a scan of the exact standard” or an HTML version of the exact standard published by Plaintiffs. SUMF ¶ 213. Defendant did everything that it could to make its copies of Plaintiffs’ standards appear as though they were genuine copies of Plaintiffs’ standards, including placing Plaintiffs’ logos on each of the copies. SUMF ¶ 210. Defendant never disclosed that the materials it posted were modified or rekeyed versions of Plaintiffs’ standards or that Plaintiffs were not associated with the creation or publication of the materials. SUMF ¶¶ 204-06, 211. When there is intent to confuse consumers, confusion can be presumed. *See, e.g., Sara Lee Corp. v. Kayser-Roth Corp.*, 81 F.3d 455, 466 (4th Cir. 1996) (“[W]e presume that the

person who sets out to infringe another's trademark has more brains than scruples, and will likely succeed."). As a result, members of the public are likely to believe mistakenly that the documents posted on Defendant's website are authentic versions of Plaintiffs' standards, or at a minimum, are associated with Plaintiffs. *See Int'l Cosmetics Exch.*, 303 F.3d at 1248-49.

2. The Materials Defendant Posted are Not Genuine Versions of Plaintiffs' Standards.

The materials Defendant posted are not genuine versions of Plaintiffs' standards for at least two reasons. First, the materials were not actually created by Plaintiffs, but instead were created by Defendant and its agents without a keen attention to detail. SUMF ¶¶ 191-201. Second, Defendant's materials did not go through Plaintiffs' quality control procedures. SUMF ¶¶ 214-20.

a. The Materials Posted by Defendant Are Not Exact Copies of Plaintiffs' Works.

Although Defendant instructed its agents to reproduce exact copies of Plaintiffs' standards, Defendant failed in its efforts to reproduce Plaintiffs' standards exactly. SUMF ¶¶ 189-201, 214-16. With respect to the PDF materials, which Defendant contends are simply scanned versions of Plaintiffs' standards, Defendant added an introductory page to the beginning of each PDF and embedded text that was created by optical character recognition within each PDF. SUMF ¶¶ 183-84. The cover page does not appear in Plaintiffs' standards and Plaintiffs do not endorse the information included on the cover page. Plaintiffs also do not endorse the embedded text in the PDFs, which is likely to contain errors. SUMF ¶ 192 (citing Defendant's expert). Additionally, Defendant admits that it made mistakes in connection with the scanning of standards that it posted on its website, including skipping pages and scanning pages upside down. SUMF ¶ 214.

With respect to the HTML materials Defendant published, Defendant instructed HTC Global to “double-key” the standards, which means that two operators independently type the text and then compare the two versions, instead of using a more accurate, but more expensive, “triple-key” methodology in which three independent operators would have typed the text. SUMF ¶190. By taking the cheaper route, Defendant knew that there could be up to 49 errors on a typical two and a half page document. SUMF ¶ 191.⁴ Additionally, the rekeying was done by non-native English speakers in India with no technical expertise. SUMF ¶ 194. Similarly, Defendant hired Mr. Malamud’s wife’s company, Point.B Studio, which used unpaid children from a “mentoring program” whose target audience was 7-14 years old to convert formulas to MathML and drawings to SVG format for use on materials posted on Defendant’s website. SUMF ¶¶ 199-200.

Not surprisingly, like the PDF versions, the HTML versions of Plaintiffs’ standards that were posted on Defendant’s website contain errors. SUMF ¶ 215. Mr. Malamud has no explanation for these mistakes and admits that they are not acceptable. SUMF ¶ 216. Plaintiffs’ standards are technical documents that include important figures, detailed drawings, and precise measurements. These standards relate to complex scientific and technical processes and procedures that promote public health and safety and ensure the quality and consistency of goods and services. Even minor mistakes in the reproduction of Plaintiffs’ standards could lead to the production of inconsistent or dangerous goods or services. Defendant’s HTML version of the 2011 NEC, for example, contains a number of errors that distort the meaning of safety features of

⁴ HTC Global testified that what it described as “double-keying” would actually involve extracting text obtained using optical character recognition (“OCR”), unless the image quality of the original document was poor, in which case two operators entered the text. SUMF ¶ 192. Even Defendant’s expert admits that using OCR to capture the text from PDF versions of Plaintiffs’ standards would result in errors, particularly because they are technical documents that contain diagrams and tables. *Id.*

the standard. SUMF ¶ 219. Malamud claims that if he were notified of any mistakes, he would do a rigorous quality assurance check and correct any mistakes. SUMF ¶ 217. But even after being notified of specific errors at his deposition, Defendant did not correct these mistakes and continued to maintain versions of standards with “unacceptable mistakes” that bear Plaintiffs’ trademarks on his website and on the Internet Archive until the Court recently suggested that Defendant should take down Plaintiffs’ standards pending the resolution of this motion. SUMF ¶ 218. In any event, it is not Plaintiffs’ responsibility to perform quality control for Defendant’s infringing website.

b. The Materials Defendant Posted Did Not Undergo Plaintiffs’ Quality Control.

One function of a trademark is to indicate to consumers that the product has been delivered according to all quality control guidelines of the trademark owner. *Shell Oil Co. v. Commercial Petroleum, Inc.*, 928 F.2d 104, 107 (4th Cir. 1991). “Distribution of a product that does not meet the trademark holder’s quality control standards may result in the devaluation of the mark by tarnishing its image. If so, the non-conforming product is deemed for Lanham Act purposes not to be the genuine product of the holder, and its distribution constitutes trademark infringement.” *Perkins Sch. for the Blind v. Maxi-Aids Inc.*, 274 F. Supp. 2d 319, 323 (E.D.N.Y. 2003).

Defendant’s actions threaten the quality assurance function of Plaintiffs’ trademarks. The materials Defendant posted on its website and the Internet Archive did not undergo Plaintiffs’ quality control measures. See SUMF ¶¶ 188-201. Plaintiffs’ longstanding use of the marks in connection with their high quality standards has resulted in the public’s association of Plaintiffs’ marks with a certain quality. SUMF ¶¶ 81, 127, 151. Malamud admitted that he did not know what quality control procedures Plaintiffs use when publishing their standards. SUMF ¶ 220.

Without this knowledge, Defendant could not have complied with these quality control procedures before publishing Plaintiffs' standards on its website. Indeed, as discussed above, the materials posted by Defendant contain a variety of errors that are inconsistent with Plaintiffs' quality control standards. *See Adolph Coors Co. v. A. Genderson & Sons, Inc.*, 486 F. Supp. 131, 136 (D. Colo. 1980) (holding that defendant's distribution of beer in manner that did not comply with trademark owner's quality control standards constituted trademark infringement).⁵

In summary, Defendant used exact copies of Plaintiffs' marks on what it purports to be exact replicas of Plaintiffs' standards and intended for the public to believe that the materials it posted on its website were authentic versions of standards that were developed and published by Plaintiffs. Defendant's use of Plaintiffs' marks and logos in connection with materials that are not genuine versions of Plaintiffs' standards that have not undergone Plaintiffs' quality control procedures, and in fact contain mistakes, constitutes trademark infringement and false designation of origin. *See Hewlett-Packard Co. v. Repeat-O-Type Stencil Mfg. Corp.*, 34 U.S.P.Q.2d 1450, 1454 (N.D. Cal. 1995) (granting summary judgment for trademark infringement against defendant who placed modified products back into original packaging containing plaintiff's logos).

C. Defendant's Activities Satisfy the "Use in Commerce" Requirement.

In addition to the requirements enumerated above, the Lanham Act includes a jurisdictional requirement that there be a "use in commerce" for the conduct to be considered infringing. 15 U.S.C. § 1114(1) and 1125(a)(1). The "use in commerce" requirement "reflects

⁵ Even if the standards Defendant posted were exactly the same authentic standards of the Plaintiffs, Plaintiffs' inability to exercise quality control over the standards Defendant posted using Plaintiffs' trademarks means that the materials were not genuine products. "The actual quality of the goods is irrelevant; it is the control of quality that a trademark holder is entitled to maintain." *El Greco Leather Products Co. v. Shoe World, Inc.*, 806 F.2d 392, 395 (2d Cir. 1986) (holding that shoes imported by defendant that were made by same factory as genuine shoes were not "genuine" because they had not undergone quality inspection by plaintiff).

Congress's intent to legislate to the limits of its authority under the Commerce Clause, rather than to limit the Lanham Act to profit-seeking uses of a trademark." *United We Stand America, Inc. v. United We Stand, America New York, Inc.*, 128 F.3d 86, 92 (2d Cir. 1997). The Lanham Act defines "commerce" to include "all commerce which may lawfully be regulated by Congress." 15 U.S.C. § 1127.

Defendant's activities fit within the Lanham Act's "broad jurisdictional grant" and "sweeping reach." *See Steele v. Bulova Watch Co.*, 344 U.S. 280, 286-87 (1952). Defendant posted Plaintiffs' standards on the internet, such that they are transmitted nationwide and even worldwide and are accessed by people in the United States through interstate cables and telephone lines. This alone is sufficient to satisfy the "use in commerce" requirement. *See Intermatic Inc. v. Toebben*, 947 F. Supp. 1227, 1239 (N.D. Ill. 1996); *Planned Parenthood Federation of Am., Inc. v. Bucci*, No. 97 Civ. 0629 (KMW), 1997 WL 133313, at *3 (S.D.N.Y. Mar. 24, 1997). Defendant also solicits donations in connection with the materials he has posted that feature Plaintiffs' marks. SUMF ¶¶ 227-31. Additionally, Defendant's activities adversely affect Plaintiffs' abilities to sell their standards, which they sell on a nationwide basis. SUMF ¶¶ 238-40. Activities that affect a plaintiff's ability to sell its goods also satisfy the "use in commerce" requirement. *Franchised Stores of N.Y., Inc. v. Winter*, 394 F.2d 664, 669 (2d Cir. 1968); *Planned Parenthood*, 1997 WL 133313, at *3. Thus, Defendant's defense that Defendant did not use Plaintiffs' marks in commerce is meritless.

D. Defendant's Use of Plaintiffs' Marks is Not Fair Use.

Defendant's use of Plaintiffs' trademarks is not a fair use. The nominative fair use defense⁶ only applies when the defendant demonstrates: (1) use of the plaintiff's mark is necessary to describe the plaintiff's product; (2) only so much of the mark is used as is reasonably necessary to identify plaintiff's product; and (3) the defendant has not done anything to suggest sponsorship or endorsement by the plaintiff or to inaccurately describe the relationship between the parties' products. *See, e.g., Rosetta Stone Ltd. v. Google, Inc.*, 676 F.3d 144, 154 (4th Cir. 2012); *Century 21 Real Estate Corp. v. Lendingtree, Inc.*, 425 F.3d 211, 222 (3d Cir. 2005); *New Kids on the Block v. News Am. Publ'g, Inc.*, 971 F.2d 302, 308 (9th Cir. 1992). Defendant cannot demonstrate any of these elements.

Defendant did not need to refer to Plaintiffs or use their marks to describe Plaintiffs' Works. There was no need for Defendant to describe Plaintiffs' Works at all to fulfill its mission of providing the public with access to the content of government regulations. Defendant could have posted only the specific information from Plaintiffs' Works that is referenced in the relevant government regulation, without identifying Plaintiffs as the source of that information or using Plaintiffs' trademarks. For example, in *Veeck*, the declaratory judgment plaintiff cut and pasted the text of the codes at issue and pasted them on his website without specifying that the codes were written by the defendant, but instead merely identifying them as the building codes of the relevant jurisdictions. *Veeck*, 293 F.3d at 793.

⁶ In addition to the nominative fair use defense, there is another type of fair use defense to trademark infringement that is called classic fair use. The classic fair use defense applies only when a plaintiff's mark is used not as a trademark but instead in its classic descriptive sense. *See Cairns v. Franklin Mint Co.*, 292 F.3d 1139, 1151 (9th Cir. 2002). This defense does not apply here because Defendant used Plaintiffs' marks to identify the supposed sources of the materials it posted, which constitutes a trademark use.

Additionally, Defendant used more of Plaintiffs' marks than necessary to identify Plaintiffs' Works. Some of Plaintiffs' trademarks are logos with design elements. See SUMF ¶¶ 78-79, 124, 126, 149, 151. Use of these logos unquestionably goes beyond what is what would be necessary to identify Plaintiffs' Works. See, e.g., *Toyota Motor Sales U.S.A., Inc. v. Tabari*, 610 F.3d 1171, 1181 (9th Cir. 2010) (use of a stylized mark and logo was more use of the mark than was necessary); *David's Bridal, Inc. v House of Brides, Inc.*, No. 06 Civ. 5660 (SRC), 2010 WL 323306, at *7 (D.N.J. Jan. 20, 2010) (use of design elements was unnecessary). Defendant does not justify its use of Plaintiffs' logos on the basis that the logos are necessary to identify Plaintiffs' products. Instead, Defendant argues the entire document is incorporated by reference and Defendant is "not in a position to decide which portions of that document are or [are] not the law." SUMF ¶ 213. Of course, Defendant has no support for its suggestion that incorporation by reference of a document brings all trademarks used in that document into the public domain. Tellingly, Defendant has posted HTML versions of certain ASTM standards since Plaintiffs filed their Complaint that do not use the ASTM logo marks. SUMF ¶ 236.

Finally, the materials Defendant posted inaccurately suggest that Plaintiffs endorse the material Defendant posted online and inaccurately convey the impression that the posted materials are genuine versions of Plaintiffs' Works. First, Defendant's use of Plaintiffs' logos in itself suggests that Plaintiffs sponsored Defendant's website and/or actions. See, e.g., *Toyota Motor Sales*, 610 F.3d at 1181 (use of plaintiffs' logo suggested sponsorship by plaintiff). Additionally, Defendant's failure to include any disclaimer clarifying that Defendant and the materials it created based on Plaintiffs' Works are not sponsored by or affiliated with Plaintiffs also weighs against a finding of nominative fair use. See *Century 21*, 425 F.3d at 231. Indeed, Defendant intended to make the materials it posted look identical to Plaintiffs' Works by

including Plaintiffs' trademarks on the versions of the Works it posted online. SUMF ¶ 212.

This reflects an effort to inaccurately portray the materials as genuine versions of Plaintiffs' Works.

If Defendant is unable to prove any one of the three elements of nominative fair use, then this defense is unavailable. In this case, Defendant cannot meet its burden on all three elements, and therefore, summary judgment is appropriate.

IV. PLAINTIFFS ARE ENTITLED TO A PERMANENT INJUNCTION.

Plaintiffs request the Court permanently enjoin Public.Resource.Org from all unauthorized reproduction of, display of, or distribution of any standards published by Plaintiffs, preparation of derivative works based upon any standards published by Plaintiffs, and all unauthorized use of Plaintiffs' trademarks. Under the Copyright Act and the Lanham Act, this Court has the authority to grant this relief. 17 U.S.C. § 502(a); 15 U.S.C. § 1116.

The Supreme Court has clarified that, when assessing entitlement to a permanent injunction, a court must look to a plaintiff's evidence "(1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction." *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006). Here, each of these four factors weighs in favor of injunctive relief.

A. Plaintiffs Have Suffered Irreparable Injury.

Plaintiffs have suffered — and will continue to suffer — irreparable injury as a result of Defendant's infringement. Defendant's unauthorized use of Plaintiffs' copyrights and trademarks threatens harm to (i) Plaintiffs' business models and standard-setting processes; (ii)

Plaintiffs' rights to exclude others from the use of their copyrighted Works; and (iii) Plaintiffs' reputations.

1. Economic Harm and Ramifications to Plaintiffs' Business Model

Plaintiffs' expert economist, Mr. Jarosz, offers an unrebutted opinion on the direct economic harm Plaintiffs have suffered and are likely to continue to suffer. Plaintiffs generate significant revenue from sales of copyrighted standards or membership dues closely tied to their copyrighted standards. SUMF ¶¶ 46-47, 106-08, 154. And basic economic principles — as well as quantitative tracking of a substantial decline in NFPA's sales of the NEC since PRO began posting the NEC online — indicate that Defendant's practice of making the standards available for free supplants these sources of revenue. SUMF ¶¶ 238-39. There is a significant risk that if Defendant's conduct goes unchecked, it will act as a signal to the market that the creation of unauthorized versions of the standards is acceptable and Plaintiffs' harm will be compounded over time as more people use the versions of the standards on Defendant's site or similar sites instead of purchasing authentic versions of the standards from Plaintiffs. SUMF ¶ 254.

A continuation of Defendant's infringement could force Plaintiffs to significantly alter their business models. Each of the Plaintiffs relies primarily on users of its standards to fund the development of the standards, rather than charging upfront fees before developing a standard. Plaintiffs' "back-loaded" business models feature extremely low barriers to participating in the standards creation process because the process is funded through sale of the resulting standards. Plaintiffs could be forced to significantly alter their business models to a more "front-loaded" system that charges for participation in the standard-creation process, which would preclude the participation of certain stakeholders and/or limit the quantity and subject matter of the standards Plaintiffs develop. SUMF ¶¶ 258-62. Plaintiffs will also likely lose revenue associated with

other ancillary activities that rely on or incorporate the copyrighted works, including training courses and commentary on standards. SUMF ¶¶ 263-64.

2. Harm to Plaintiffs' Right to Exclude

One of the fundamental tenets of intellectual property law is the right to exclude others from using the protected work. Thus, “[h]arm can be irreparable . . . where a copyright holder seeks to prevent the use of his or her work and, absent an injunction, the defendant is likely to continue infringing the copyright.” *Broad. Music, Inc. v. PAMDH Enters.*, No. 13 Civ. 2255 (KMW), 2014 WL 2781846, at *4 (S.D.N.Y. June 19, 2014). Indeed, this Court has repeatedly recognized that a threat of continuing infringement justifies granting an injunction. *Breaking the Chain Found. v. Capital Educ. Support, Inc.*, 589 F. Supp. 2d 25, 30 (D.D.C. 2008) (citing *Walt Disney Co. v. Powell*, 897 F.2d 565, 567 (D.C. Cir. 1990)); *Hanley-Wood LLC v. Hanley Wood LLC*, 783 F. Supp. 2d 147, 151 (D.D.C. 2011). Put simply, Plaintiffs have a right to exclude future unauthorized use of their standards and trademarks, and the threat of continued unauthorized use by Defendant justifies a finding that the harm to Plaintiffs is “irreparable.”

Here, Defendant has consistently intruded on Plaintiffs' right to exclude others from using their copyrighted works and will continue to do so based on Defendant's belief that incorporated standards should be made publicly available “without restriction.” SUMF ¶ 222. During the course of this litigation, Defendant has continued to post versions of additional standards owned by Plaintiffs that use Plaintiffs trademarks on its website, including as recently as October 2015. SUMF ¶ 235. Absent an injunction, Defendant will continue to cause irreparable injury by disseminating Plaintiffs' copyrighted works and protected trademarks in violation of Plaintiffs' rights. See *Metro-Goldwyn-Mayer Studios, Inc. v. Grokster, Ltd.*, 518 F. Supp. 2d 1197, 1217 (C.D.Cal. 2007) (finding irreparable harm where that defendant continued

to induce infringement by unknown third-parties and plaintiff's copyrights were vulnerable to continued infringement).

3. Harm to Plaintiffs' Reputations

Plaintiffs also have a right to protect their reputations. Indeed, courts have recognized that using another's trademark will result in irreparable harm because it causes the trademark owner to lose control of the goodwill associated with its mark. *See Breaking the Chain Found.*, 589 F. Supp. 2d at 30; *Hanley-Wood LLC*, 783 F. Supp. 2d at 151. Here, "Plaintiffs have spent decades establishing the goodwill associated with their names and logos, which the public associates with their high quality work." SUMF ¶ 245 (citing Jarosz Rept. ¶ 151). And each Plaintiff is a non-profit with a mission statement directed at advancing the science in its area of focus (e.g., fire protection, heating and air-conditioning efficiency). SUMF ¶¶ 9, 86, 129. That goodwill and those mission statements are severely compromised if Defendant is allowed to publish versions of Plaintiffs' standards that are incomplete, contain transcription errors, or otherwise alter the content of Plaintiffs' standards. Yet, as discussed above, Defendant does not utilize the same strict quality-control procedures as Plaintiffs and, as a result, Defendant posted versions of Plaintiffs' standards that contain errors. SUMF ¶¶ 214-20. Defendant's actions pose a risk to Plaintiffs' reputations as creators of high-quality technical standards.

B. Remedies Available at Law Are Inadequate.

In determining whether remedies at law are adequate, a court may look to both the difficulty of quantifying damages and a defendant's ability to pay. *See Fox Television Stations, Inc. v. FilmOn X LLC*, 966 F. Supp. 2d 30, 50 (D.D.C. 2013) (granting an injunction where "[t]he damages [p]laintiffs face are neither easily calculable, nor easily compensable" and "[defendant] is a startup company that would likely be unable to pay statutory copyright damages

of \$150,000 per work if Plaintiffs prevail”) (quotation marks omitted). Here, both considerations weigh in favor of injunction.

As Plaintiffs’ expert, Mr. Jarosz, has explained, the continuation of Defendant’s infringing activities could force Plaintiffs to shift their business models or reduce operations, and it is exceedingly difficult to quantify or forecast the economic impact of these types of changes. SUMF ¶¶ 258-62. Additionally, much of the harm sustained by Plaintiffs — including the harm to Plaintiff’s goodwill — is by nature very difficult to quantify. SUMF ¶ 245 (citing to Jarosz Rept. ¶ 151). Defendant posted Plaintiffs’ Works in a manner that they can be copied, downloaded, or printed by any member of the public. Plaintiffs’ standards that Defendant posted on the Internet Archive were downloaded anywhere from tens to tens of thousands of times. SUMF ¶ 241. Plaintiffs’ standards were also “accessed” thousands of times from Defendant’s website between April 2013 and February 2014 alone. SUMF ¶ 244. Defendant admits that it does not have any information about how the Works accessed from its website are being used. It is thus impossible to assess the full scope of the infringement by third parties or the resulting damages. SUMF ¶¶ 247-48. Copies of 43 of Defendant’s versions of ASTM’s standards at issue, with Defendant’s cover page, were uploaded by “dharlanuctcom” onto the Scribd platform. SUMF ¶¶ 249. Moreover, multiple resellers and merchants have downloaded copies of NFPA’s standards posted by Defendant and attempted to resell or redistribute them on the Internet, including as recently as October. When NFPA asked these resellers to cease and desist, they cited Defendant’s campaign of misinformation about the copyright status of these standards as justification for their unauthorized sales. SUMF ¶ 240.

Moreover, any effort to recover statutory damages or Plaintiffs’ actual damages would be futile. This case involves 257 distinct copyrighted works, and statutory damages can range up to

\$150,000 per work. 17 U.S.C § 504(c). But Defendant's financial documents reveal that in 2014 Defendant generated less than \$100,000 in operating income and had \$248,000 in total net assets. SUMF ¶¶ 272-73 (citing Jarosz Rept. at ¶ 155, Tabs 6-7). Even if the harm to Plaintiffs was quantifiable or statutory damages were in play, Defendant simply does not have the money. For these reasons, money damages are not a viable option.

C. The Balance of Hardships Favors Issuing an Injunction.

Plaintiffs' expert, Mr. Jarosz, evaluated the potential hardships to Plaintiffs and to Defendant at length. His unrebutted expert conclusion is that the overwhelming weight of evidence demonstrates that Plaintiffs will suffer a variety of harms while Defendant will not.

In contrast to the financial and reputational harms Plaintiffs face that are discussed above, an injunction would cause no recognizable harm to Defendant. As an initial matter, Defendant cannot claim an equitable interest in continuing its unlawful, infringing activity. *See Fox Television Stations*, 966 F. Supp. 2d at 51; *Triad Sys. Corp. v. Southeastern Express Co.*, 64 F.3d 1330, 1338 (9th Cir. 1995) (Defendant "cannot complain of the harm that will befall it when properly forced to desist from its infringing activities."); *Concrete Mach. Co. v. Classic Lawn Ornaments, Inc.*, 843 F.2d 600, 612 (1st Cir. 1988) (harm from ceasing infringement "merits little equitable consideration").

Even if the costs to Defendant of ceasing infringement are considered, there is still no discernable harm to Defendant. Plaintiffs' standards are only a portion of the content on one of at least 10 websites operated by Defendant. SUMF ¶ 276 (citing Jarosz Rept. ¶ 157). And Defendant has admitted that there will be no long-term financial impact if Defendant's infringement is halted. Specifically, Mr. Malamud testified:

Q: If Public Resource was unable to continue to post the standards incorporated by reference on its website, what impact, if any,

would that have on Public Resource's financial ability to survive long term?

A: Probably none....

Q: Can you identify any harm that would be suffered by Public Resource if it was precluded from posting standards incorporated by reference on its website?

A: THE WITNESS: We put a tremendous amount of effort in – into this and one hates to have wasted that – that effort.

Q: Anything else that you can think of?

A: No.

SUMF ¶ 277. But even the claimed “tremendous effort” will not be lost. Defendant wanted its day in court to test the law. That day has now arrived, and Defendant is receiving the very opportunity it sought when posting the standards. Barring Defendant's continued infringement after ruling in Plaintiffs' favor will pose no harm to Defendant.

D. The Public Interest Favors Issuing an Injunction.

The public interest is served by upholding copyrights and protecting the creative work of copyright holders like Plaintiffs. *Fox Television Stations*, 966 F. Supp. 2d at 51 (finding public interest favored an injunction because “the public interest can only be served by upholding copyright protections and correspondingly, preventing the misappropriation of skills, creative energies, and resources which are invested in the protected work”) (citing *Apple Computer, Inc. v. Franklin Computer Corp.*, 714 F.2d 1240, 1255 (3d Cir. 1983)). This is especially true in the current case where it is not disputed that Plaintiffs, and other SDOs, provide myriad public benefits through the publication of their standards.

Mr. Malamud has readily admitted that the NFPA “does amazing work and saves lives,” that he is a “big fan of ASTM . . . and we need to continue to have standards in that area,” and that “ASHRAE Standard 90.1 is an important standard.” SUMF ¶¶ 164-67. It is also widely

accepted that without the work of private SDOs, government agencies would not have the resources or technical expertise to fulfill their regulatory duties as well as they do currently. SUMF ¶ 266 (citing Jarosz Rept. at ¶¶ 52-56; 164). Unfortunately, as Mr. Jarosz has explained in detail, the outcome of this litigation could negatively impact Plaintiffs' ability to provide that public good and may force Plaintiffs to alter their business models.

As Mr. Malamud has conceded, "making standards more freely available . . . potentially poses a challenge to the current business models of the standards development of some standards development organizations." SUMF ¶ 255. The public would suffer if Plaintiffs altered their business models to a "front loaded" model. Standards developed under a front-loaded model are more likely to feature only the viewpoints of industry interests with the resources to participate in the process and are less likely to reflect the views and concerns of the general public. SUMF ¶¶ 259-60 (citing Jarosz Rept. ¶¶ 106-11). Another unfortunate option would be for Plaintiffs to simply reduce their activities in response to the financial losses that would occur in the absence of an injunction. Plaintiffs could shift focus to developing only the most popular standards or release updated versions of standards less frequently. SUMF ¶¶ 261-62 (citing Jarosz Rept. ¶¶ 126-29). Overall, any scenario where Defendant's conduct is not enjoined will result in less robust or sub-optimal standard development.

If not enjoined, Defendant's actions threaten the ability of government at the federal, state and local levels to capitalize on the technical expertise and resources of the standards developing organizations and their members. Government and other entities rely on Plaintiffs'

standards and do not have the resources or the technical expertise to develop their own standards if Plaintiffs were unable to develop them.⁷ SUMF ¶ 266.

Defendant maintains that its website also serves the public interest by allowing greater access to Plaintiffs' standards. But this rings hollow. There is no evidence actions serve the public good in any meaningful way beyond the services already provided by Plaintiffs. Plaintiffs already provide free online access to the Works through their own websites. SUMF ¶¶ 63-64, 100, 161. Plaintiffs also price their standards quite moderately, base prices primarily on the cost of publication, and in many instances provide discounts for educational users. SUMF ¶¶ 58-62, 99, 158-60. Tellingly, there is no evidence that any person who was attempting to comply with a regulation that incorporates by reference any of Plaintiffs' standards was unable to access the standard. SUMF ¶ 168. And Defendant readily agreed to remove Plaintiffs' standards from its website in order to obtain a longer briefing schedule on this motion, and there has been no indication of any resulting harm to the public from Defendant's ceasing of its infringing activity. SUMF ¶¶ 274-75.

CONCLUSION

For all the foregoing reasons, the Court should grant summary judgment in favor of Plaintiffs' on their copyright infringement and trademark infringement claims and should permanently enjoin Defendant from infringing Plaintiffs' copyrights and trademarks.

⁷ Defendant has suggested that another alternative is for the government to fund standards development. However, there is no evidence that any government entity is willing to do this. And a government funding option would be economically inefficient, increase the tax burden on the public, and place SDOs at the mercy of funding that could be reduced or eliminated in yearly agency budgeting. SUMF ¶ 268 (citing Jarosz Expert Rep. at ¶¶ 123-25). State agencies are also unlikely to be able to replicate the broad national base of expertise from a variety of perspectives that goes into Plaintiffs' standards.

Dated: November 19, 2015

Respectfully submitted,

/s/ J. Kevin Fee

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**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

<p>AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a/ ASTM INTERNATIONAL;</p> <p>NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and</p> <p>AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS,</p> <p>Plaintiffs/ Counter-Defendants,</p> <p>v.</p> <p>PUBLIC.RESOURCE.ORG, INC.,</p> <p>Defendant/ Counter-Plaintiff.</p>	<p>Case No. 1:13-cv-01215-TSC</p>
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**PLAINTIFFS' STATEMENT OF MATERIAL FACTS IN SUPPORT OF THEIR
MOTION FOR SUMMARY JUDGMENT**

Pursuant to the Local Rule 7(h), Plaintiffs American Society for Testing and Materials (“ASTM”), National Fire Protection Association, Inc. (“NFPA”) and American Society of Heating, Refrigerating, and Air Conditioning Engineers (“ASHRAE”) (collectively, “Plaintiffs”) hereby submit, in support of their Motion for Summary Judgment, a statement of material facts as to which there is no genuine issue to be tried:

I. PLAINTIFFS AND THEIR INTELLECTUAL PROPERTY

1. The term “standards” refers to a variety of technical works, including works that contain product specifications, installation methods, methods for manufacturing or testing materials, recommended practices to ensure safety or efficiency, or other guidelines or best practices. Declaration of James Thomas (“Thomas Decl.”) ¶ 6.

2. An organization that develops standards is a “standards development organization” or “SDO.” Thomas Decl. ¶ 7.

3. In the United States, standards are typically developed by private organizations that have technical expertise in the relevant area. Thomas Decl. ¶ 8.

4. Standards are usually highly technical and specialized, and are written for audiences that have particular expertise in the relevant fields. Thomas Decl. ¶ 9.

5. Standards are used by industry actors as a form of self-regulation and as a source of best practices. Thomas Decl. ¶ 10.

6. Private sector standards development in the United States is generally coordinated and accredited by the American National Standards Institute (“ANSI”). ANSI is a nonprofit membership organization that facilitates the development of private sector standards and promotes their integrity by accrediting standards development organizations whose procedures comply with ANSI requirements. Declaration of James T. Pauley (Pauley Decl.) ¶ 14.

7. The ANSI requirements include that standards development committees must contain balanced membership, conduct open proceedings, provide public notice of standards development activity and opportunity for public comment, give due consideration and response to public comments, and provide an opportunity to appeal committee decisions. Pauley Decl. ¶ 15.

8. Standards that are developed in accordance with ANSI requirements are known as voluntary consensus standards. Pauley Decl. ¶ 15.

A. AMERICAN SOCIETY FOR TESTING AND MATERIALS

Background

9. American Society for Testing and Materials (“ASTM”) is a not-for-profit organization whose mission is to be recognized as the premier developer and provider of voluntary consensus standards, related technical information and services that promote public health and safety, support the protection and sustainability of the environment, and improve the overall quality of life; contribute to the reliability of materials, products, systems and services; and facilitate international, regional, and national commerce. Thomas Decl. ¶¶ 3, 11.

10. ASTM was founded in 1898 when a group of railroad experts and engineers got together to respond to technical issues that had been identified in the early days of the railroad industry. The very first ASTM standard, standard A1, provided uniform specifications for carbon steel rails. This made it possible for manufacturers from different parts of the country to produce uniform rails that could be used in a national railroad. Thomas Decl. ¶ 4.

11. ASTM’s activities have expanded over the past one hundred years. Thomas Decl. ¶ 5.

12. ASTM develops voluntary consensus standards and is accredited by ANSI. Thomas Decl. ¶ 12.

13. ASTM standards are used in a wide range of fields, including consumer products, iron and steel products, rubber, paints, plastics, textiles, medical services and devices, electronics, construction, energy, water, and petroleum products. Thomas Decl. ¶ 5.

14. ASTM standards are developed based on public demands, industry needs, and public safety concerns and advancements in technology. They address a technical issue or problem identified by a group of people in the relevant sector that can be addressed with a

standard-based solution. Thomas Decl. ¶ 13; Declaration of Steven Cramer (“Cramer Decl.”) ¶ 19; Declaration of Randy Jennings (“Jennings Decl.”) ¶ 16.

15. ASTM’s standards are used by scientists and engineers in their laboratories, by architects and designers in their plans, and by industry in their business contracts. Thomas Decl. ¶ 14.

ASTM Membership and Members’ Assignment of Copyrights to ASTM

16. Membership in ASTM costs \$75 per year for an individual member and \$400 per year for an organizational member. Each member receives one free volume of the Annual Book of ASTM Standards as well as other membership benefits. Thomas Decl. ¶ 19.

17. ASTM has kept its membership fees at \$75 for over fifteen years to permit the widest possible participation in the standard development process, so as to prevent its standards from being biased toward the interests of only stakeholders who can afford to pay higher membership fees. ASTM’s membership fees have never exceeded \$75. Thomas Decl. ¶ 20.

18. Since 2005, new members and members renewing their memberships online to ASTM agree to the following language: “I agree, by my participation in ASTM and enjoyment of the benefits of my annual membership, to have transferred and assigned any and all interest I possess or may possess, including copyright, in the development or creation of ASTM standards or ASTM IP to ASTM.” Declaration of Thomas O’Brien, Jr. (“O’Brien Decl.”) ¶ 41 and Ex. 11; Cramer Decl. ¶¶ 12-13 and Exs. 1 and 2; Jennings Decl. ¶ 10 and Ex. 1.

19. Some members renew their memberships using paper forms that contain substantially the same language. O’Brien Decl. ¶ 42 and Ex. 12.

20. The technical contact is the leader of a task group, which develops a draft of a new standard or a revision to an existing standard. Thomas Decl. ¶¶ 25-26.

21. Michael Collier was the technical contact for ASTM D87-07. Michael Collier renewed his ASTM membership every year between 2007-2014 using ASTM's online membership renewal form. O'Brien Decl. ¶¶ 43-44.

22. John Chandler was the technical contact for ASTM D975-07 and D398-98. John Chandler renewed his ASTM membership every year between every year between 2007-2014 using the online membership renewal form. O'Brien Decl. ¶¶ 45-46.

23. Jimmy King was the technical contact for the 1998 reapproval of ASTM D1217. Jimmy King renewed his ASTM membership in 2007. O'Brien Decl. ¶¶ 47-48.

24. Randy Jennings participated in the development of ASTM D975-07. Randy Jennings renewed his ASTM membership every year between 2007-2014 using the online membership renewal form and understands that he has assigned any and all copyrights in standards he helped to develop from 1990 to the present to ASTM. Jennings Decl. ¶¶ 10, 15.

25. Each individual who registers a "work item," which starts the process of developing a new standard or amending an existing standard, must agree to the following language: "I hereby grant and assign to ASTM International all and full intellectual property rights, including copyright, in the proposed draft standard/text and any contributions I make to ASTM International in connection with this proposal" and "By submitting this form, I acknowledge that all copyrights to this document, as a draft and an approved ASTM standard, are the sole and exclusive property of ASTM, in accordance with the Intellectual Property policies of the Society." O'Brien Decl. ¶ 49 and Ex. 13.

26. ASTM knows of no individual or other person other than ASTM who claims to own any copyright interest in any ASTM standard. O'Brien Decl. ¶ 12; Jennings Decl. ¶¶ 7, 11, 12; Cramer Decl. ¶¶ 6, 14, 15.

27. ASTM has not licensed Defendant's use of ASTM's standards. O'Brien Decl. ¶ 14.

ASTM's Standard Development Process

28. ASTM has over 140 technical committees made up of over 23,000 technical members representing producers, users, consumers, government, and academia from more than 150 countries. Thomas Decl. ¶ 21.

29. Each technical committee contains a balanced voting membership, including industry representatives, government representatives, consumers, academics, people with particular expertise in the subject matter, and others. This broad base of stakeholders leads to the highest possible quality of standards that are relevant in the marketplace. Thomas Decl. ¶ 22.

30. Throughout the standards development process, ASTM and its committees make it clear that all participants' contributions to any particular standard will be merged into a unitary standard. Thomas Decl. ¶ 23; Jennings Decl. ¶¶ 18-19; Cramer Decl. ¶¶ 23-24.

31. ASTM's standard development process begins with an individual registering a "work item," which describes the idea for a new standard that will be published and owned by ASTM, or moving to draft a new standard at a subcommittee meeting. Thomas Decl. ¶ 24.

32. The chair of the relevant subcommittee then reviews the work item request and considers, among other things, whether there is a need for the proposed standard and whether there will be sufficient interest from a balanced group necessary to develop the standard. If the chair approves the work item or if the subcommittee approves the motion for a new standard, a task group will develop a draft of the standard. Thomas Decl. ¶ 25.

33. The process of drafting the standard is an iterative process. The task group works collaboratively, with many people sharing ideas, suggesting wording and providing comments that contribute to the draft standard. Cramer Decl. ¶ 17; Jennings Decl. ¶ 13.

34. The draft standard is then edited by an ASTM staff member, who also adds certain language and components that are required by the ASTM form and style guide. Thomas Decl. ¶ 27; Jennings Decl. ¶ 20; Cramer ¶ 25.

35. ASTM staff members drafted language that appears in each of the standards at issue in this litigation, including the four ASTM standards for which ASTM is moving for summary judgment. O'Brien Decl. ¶¶ 15-39 and Exs. 5-9.

36. The draft standard is then voted on by first the entire subcommittee, followed by the entire main committee and the complete Society, and reviewed by the Committee on Standards to ensure that all procedures were followed. Thomas Decl. ¶ 28.

37. Technical committees make decisions about the appropriate content of the standards, including the relevant measurements, values, descriptions, and other specifications, as well as the language with which to express these standards. Thomas Decl. ¶ 29; Jennings Decl. ¶ 17; Cramer Decl. ¶ 21.

38. There are other standard developing organizations that create standards that cover the same or similar subject matter as the standards developed by ASTM, including, for example, the International Organization for Standards, SAE International, the American Association of State Highway and Transportation Officials, and the American Wood Council. The content and language of these entities' standards differs from the content of the corresponding ASTM standards. Thomas Decl. ¶ 30; Cramer Decl. ¶ 22.

39. At each level of balloting, voters can suggest edits or provide comments. Each negative vote must be addressed to determine if it is persuasive. At least 66.7% of the voting subcommittee members and 90% of the voting main committee members must approve all standard actions, with not less than 60% of the voting members returning ballots. Thomas Decl. ¶ 31.

40. The published versions of ASTM's standards include copyright notices alerting the public (including the individuals who participated in the creation of the standards) to the fact that the copyrights are owned by ASTM. O'Brien Decl. ¶ 11.

41. ASTM has developed over 12,000 standards through this exhaustive process. Thomas Decl. ¶ 32.

42. All ASTM standards are required to be reviewed on a 5 year schedule and either reapproved, revised or withdrawn in revision cycles that typically take 8-12 months to complete. Thomas Decl. ¶ 33.

Funding the Costs of Developing ASTM Standards

43. ASTM incurs substantial costs for its standards development infrastructure and delivery platforms, including the resources it provides to encourage collaboration among members; expenses relating to technical committee meetings and balloting as the standards make their way through the development process; and editing, producing, distributing and promoting the completed standards. Thomas Decl. ¶ 34.

44. In 2014, ASTM spent more than \$9 million to cover the cost of technical committee operations and \$19 million for publication of copyrighted materials. Thomas Decl. ¶ 35.

45. ASTM incurs the costs of developing its standards with the understanding that the standards will be protected by copyrights that provide ASTM with the exclusive right to sell, reproduce, display and create derivative works based on the standards. Thomas Decl. ¶ 36.

46. ASTM depends on the revenue it generates from sales of its copyrighted materials to conduct its operations and requires that revenue to be in a position to continue to develop its standards in the manner in which it currently operates. Thomas Decl. ¶ 37.

47. ASTM generates over two-thirds of its revenue from the sale of copyrighted materials. Thomas Decl. ¶ 38.

48. ASTM has devoted substantial efforts to develop and promote the sale of products and services that are related or complementary to ASTM's standards. ASTM does not generate substantial income from these goods and services, despite decades of efforts. Thomas Decl. ¶ 39.

49. ASTM generated a net loss of \$3 million in 2014 for non-standards related products and services. Thomas Decl. ¶ 40.

50. ASTM does not consider the likelihood and extent to which a standard will generate revenues when deciding whether to develop or maintain a standard. Thomas Decl. ¶ 42.

51. Sales of a limited number of standards drive the bulk of ASTM's revenues. Because of their relevance to smaller market audiences, many other standards generate very limited revenues, which do not cover the costs of the development process. The sales of certain standards effectively subsidize the creation and maintenance of the remaining standards. Thomas Decl. ¶ 43.

52. ASTM's copyrighted materials give ASTM a competitive advantage in selling ancillary or complementary products and services. ASTM can include copies of its standards as

part of a package it provides to customers in training or certification programs. Thomas Decl. ¶ 41.

The Incorporation by Reference of ASTM Standards Into Government Regulations

53. On occasion, government agencies incorporate ASTM's standards by reference into regulations. Approximately 10 percent of ASTM's standards are incorporated by reference into federal regulations. Thomas Decl. ¶ 15.

54. ASTM standards are not developed for the purpose of being incorporated into regulations. Thomas Decl. ¶ 16; Cramer Decl. ¶ 20.

55. When it develops a new standard, ASTM does not know whether the standard will be incorporated by reference into government regulations. Thomas Decl. ¶ 17.

56. ASTM does not lobby government agencies to reference its standards. Thomas Decl. ¶ 18.

The Reasonable Availability of ASTM Standards

57. ASTM publishes its standards in hard copy and digital formats, including PDFs, HTML and XML formats, which can be purchased from ASTM or its authorized resellers. Thomas Decl. ¶ 44.

58. When purchased individually, the price per ASTM standard is \$38-\$89. Thomas Decl. ¶ 45. The price of each new individual standard is calculated based on the number of pages in the standard. Thomas Decl. ¶ 46.

59. ASTM's standards are reasonably accessible and available to the public. Rubel Decl. ¶ 4, Ex. 1 (Expert Report of John Jarosz ("Jarosz Rep.") ¶ 86).

60. ASTM does not seek to obtain higher prices for standards that have been incorporated by reference. Thomas Decl. ¶ 47; Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 87-88).

61. ASTM provides copies of its standards at a reduced cost or at no cost when it is informed that the regular cost is a burden to the requester. Thomas Decl. ¶ 48.

62. For example, ASTM has a “10 Standards for Students” program through which professors can select any 10 ASTM standards and students can purchase a packet containing all 10 standards for just \$10 per student. Thomas Decl. ¶ 49.

63. ASTM provides the public with free, read-only access to all ASTM standards that ASTM is aware have been incorporated by reference into federal regulations. Thomas Decl. ¶ 50; O’Brien Decl. ¶ 60.

64. ASTM provides the public with free, read-only access to all ASTM standards that are the subject of the Motion for Summary Judgment. O’Brien Decl. ¶ 61 and Ex. 17.

65. ASTM identifies standards that have been incorporated by reference into federal regulations from the database created by the National Institute of Standards and Technology. Thomas Decl. ¶ 51; O’Brien Decl. ¶ 62.

66. ASTM publicizes the free read-only access provided on its website. Thomas Decl. ¶ 52; O’Brien Decl. ¶ 63.

67. During the notice and comment period regarding proposed federal regulations, upon request by the relevant federal agency, ASTM provides free, read-only access to standards that are incorporated by reference in proposed regulations. Thomas Decl. ¶ 53; O’Brien Decl. ¶ 64.

68. ASTM routinely grants permission to researchers, academics and others to reproduce its standards at no cost for non-commercial purposes. O’Brien Decl. ¶ 13.

69. ASTM has not received any complaints about lack of accessibility of its standards other than from Defendant. Thomas Decl. ¶ 54; O’Brien Decl. ¶ 65.

ASTM's Copyright Registrations

70. ASTM has copyright registrations that cover each of the standards at issue in this litigation. O'Brien Decl. ¶ 8.

71. ASTM has a copyright registration for ASTM D86-07 (Standard Test Methods for Distillation of Petroleum Products at Atmospheric Pressure) that identifies ASTM as the owner. O'Brien Decl. ¶ 5 and Ex. 1.

72. ASTM has a copyright registration for ASTM D975-07 (Standard Specification for Diesel Fuel Oils) that identifies ASTM as the owner. O'Brien Decl. ¶ 6 and Ex. 2.

73. ASTM publishes an Annual Book of ASTM Standards every year that is composed of a number of volumes and includes the current version of each of its standards. O'Brien Decl. ¶ 7.

74. Between 1980 and 2011, ASTM obtained copyright registrations for each volume of its Book of Standards. O'Brien Decl. ¶ 8.

75. ASTM D396-98 and D1217-93(98) were published in Volume 5.01 of the 1999 Annual Book of ASTM Standards. O'Brien Decl. ¶ 9 and Ex. 3.

76. ASTM has a copyright registration for Volume 5.01 of the 1999 Annual Book of ASTM Standards that identifies ASTM as the owner. The date of first publication for this work was February 22, 1999 and the effective date of registration is March 10, 1999. O'Brien Decl. ¶ 10 and Ex. 4.

ASTM's Trademarks

77. ASTM owns a U.S. federal trademark registration for the trademark ASTM (U.S. Trademark Reg. No. 2,679,320) in connection with books featuring information on standardization of specifications and the methods of testing for various materials and products;

promoting public awareness of the need for standards; educational services; and providing a website on global computer networks featuring information in the field of specifications and methods of testing for various materials and products. ASTM has used this trademark since 1962. ASTM filed a Section 15 declaration in support of the incontestability of this registration. O'Brien Decl. ¶ 55 and Ex. 14.

78. ASTM owns U.S. federal trademark registrations for the trademarks ASTM INTERNATIONAL (U.S. Trademark Reg. No. 2,685,857) and the following logo:



(U.S. Reg. No. 2,651,796) in connection with similar goods and services. ASTM has used these trademarks since 2001. ASTM filed Section 15 declarations in support of the incontestability of these registrations. O'Brien Decl. ¶ 56 and Ex. 15.

79. ASTM also owns a registration for the following logo:



(U.S. Reg. Nos. 4,079,772) in connection with publications relating to testing methods, specifications and standards in engineering, industrial and allied fields. ASTM has used this trademark since 1965. The application for this registration was filed on May 10, 2011. The

Examining Attorney who reviewed the application approved it for registration without requesting proof of secondary meaning. O'Brien Decl. ¶ 57 and Ex. 16.

80. ASTM expends considerable resources marketing and promoting its goods and services in connection with these trademarks every year. For example, ASTM spent over \$3 million marketing and promoting sales of its standards that feature its trademarks in catalogs, brochures, and in mail and email correspondence between 2010-2012, which were the three years immediately prior to Defendant's infringement. O'Brien Decl. ¶ 58.

81. ASTM's longstanding use of its trademarks in connection with its high quality standards has resulted in the public's association of ASTM's marks with a certain quality. O'Brien Decl. ¶ 59.

82. The ASTM word mark and logo are well known. Rubel Decl. ¶6, Ex. 3 (Deposition of Carl Malamud ("C. Malamud Dep.") at 14:12-23).

83. ASTM engages in quality control procedures to ensure the quality and integrity of the content of the standards. O'Brien Decl. ¶ 50.

84. ASTM staff does the final edit of each of the standards prior to publication. As part of this process, ASTM staff submits the final version to the technical committee for reviews to make sure it matches the content approved through the balloting process. O'Brien Decl. ¶¶ 50-52; Cramer Decl. ¶ 26.

85. ASTM staff proofreads the XML versions of standards before posting them on the internet to ensure that the conversion of the text and diagrams into XML format has not altered the content of the standard. O'Brien Decl. ¶ 53.

B. NATIONAL FIRE PROTECTION ASSOCIATION, INC.

Background

86. The National Fire Protection Association, Inc. (“NFPA”) is a nonprofit organization, based in Quincy, Massachusetts, devoted to eliminating death, injury, property and economic loss due to fire, electrical and related hazards. NFPA was founded in 1896, and has continuously developed standards since that time. Pauley Decl. ¶ 4.

87. NFPA delivers information and knowledge through more than 300 consensus codes and standards, research, training, education, outreach and advocacy. NFPA’s membership totals more than 65,000 individuals throughout the world. Pauley Decl. ¶ 4.

88. NFPA is periodically audited by ANSI and is accredited and classified as an Audited Designator by ANSI. Pauley Decl. ¶ 16.

89. The primary users of NFPA standards are professionals and tradespeople who use these standards in the course of their business, such as electricians, architects, and electrical equipment manufacturers. The professionals who use NFPA standards are familiar with them and have reasonable access to them. Pauley Decl. ¶ 13; Declaration of James Golinveaux (“Golinveaux Decl.”) ¶ 10.

90. Many NFPA standards are incorporated by reference in federal and state laws and regulations. NFPA is aware that its standards are frequently incorporated by reference, but NFPA does not develop any standards solely for that purpose. Pauley Decl. ¶ 10.

91. All NFPA standards have a range of applications and uses even if they are not incorporated by reference in government laws or regulations. Pauley Decl. ¶ 12.

92. NFPA develops new standards based on a determination that developing a standard in a particular area would serve NFPA’s mission of reducing the risk of loss from fire

and related hazards. NFPA does not consider whether the standard will generate revenue when deciding whether to develop the standard. Pauley Decl. ¶ 11.

93. NFPA develops the National Electrical Code (“NEC”), and has done so since 1897. NFPA updates and revises the NEC every three years. The current edition of the NEC is the 2014 edition, which is over 900 pages long. Pauley Decl. ¶ 7. Additional NFPA standards include NFPA 101, the Life Safety Code, and NFPA 13, the Standard for the Installation of Sprinkler Systems. Pauley Decl. ¶ 9; Golinveaux Decl. ¶ 4.

94. The NEC addresses the installation of electrical conductors, equipment, and raceways; signaling and communications conductors, equipment, and raceways; and optical fiber cables and raceways in commercial, residential, and industrial occupancies. The NEC is the world’s leading standard for electrical safety and provides the benchmark for safe electrical design, installation and inspection to protect people and property from electrical hazards. Pauley Decl. ¶ 8.

Benefits of NFPA’s Standards

95. State governments benefit greatly from the standards developed by NFPA through its voluntary consensus process. The expertise and resources invested by NFPA in standards development enable state governments to incorporate standards that serve the public interest. State governments rely on NFPA and other private sector standards developers to create the highest-quality standards that reflect a wide diversity of viewpoints. Declaration of Kevin Reinertson (“Reinertson Decl.”) ¶¶ 11-12.

96. State government agencies would not have the funding or resources to create standards if NFPA were unable to develop them. Reinertson Decl. ¶¶ 13-14.

97. Fire safety professionals and the fire protection industry benefit greatly from the standards developed by NFPA through its voluntary consensus process, which develops standards that reflect the broadest possible consensus about fire safety techniques and that can be used widely throughout the country. Golinveaux Decl. ¶¶ 5-6.

98. NFPA's standards development process results in the creation of uniform industry-wide standards. Professionals across the industry rely on the existence of these standards, and this industry-wide uniformity could not be achieved without NFPA or a similar organization with the resources to devote to standards development. Golinveaux Decl. ¶ 7.

The Reasonable Availability of NFPA's Standards

99. NFPA sells its standards in a variety of formats, including as PDFs, eBooks, and in softcover, looseleaf, or spiralbound versions. The price for NFPA standards ranges from \$39 to \$105. Pauley Decl. ¶ 44.

100. NFPA provides the full text of NFPA standards for free viewing by any member of the public on its website. All NFPA standards can currently be read in full and without cost on NFPA's website. Pauley Decl. ¶ 45.

101. NFPA also encourages jurisdictions that incorporate its standards by reference to link their websites to its free, online version of the standards, and provides a widget that easily enables such access. Pauley Decl. ¶ 45.

102. The published versions of NFPA's standards include copyright notices alerting the public, including the people who participated in the standards development process, that the copyrights are owned by NFPA. Pauley Decl. ¶ 25.

103. NFPA routinely grants permission to researchers, educators, and others to use portions of NFPA standards for educational and other non-commercial purposes at no cost. Declaration of Dennis Berry (“Berry Decl.”) ¶ 10.

Funding the Costs of Developing NFPA’s Standards

104. NFPA expends substantial resources on standards development, including salary and benefits for its own administrative and expert staff, office space, meeting facilities for the more than 250 Technical Committees who participate in the NFPA standards development processes, outreach and education efforts, and information technology. Pauley Decl. ¶ 18.

105. In 2014, NFPA spent more than \$13.5 million on standards development and more than \$27 million for publication of copyrighted materials. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 71, 91).

106. NFPA funds its standards development and publications activities primarily with the revenue obtained from sales of its copyrighted standards. In 2014 NFPA’s publications sales accounted for over 70% of NFPA’s total operating revenues. The overwhelming majority of that publications revenue comes from the sale of codes and standards. Pauley Decl. ¶ 46.

107. To preserve the revenue from sales of publications, NFPA must be able to assert copyright in its standards to prevent unauthorized copying of NFPA standards, which threaten to substantially undermine NFPA’s sales. Pauley Decl. ¶ 49.

108. NFPA depends on the revenue it generates from sales of its copyrighted materials to conduct its operations and needs that revenue to continue to develop its standards in the manner in which it currently operates. Pauley Decl. ¶¶ 47-51; Rubel Decl. ¶ 49, Ex. 45 (Mullen Dep. at 224:14-229:5).

NFPA's Standard Development Process and Copyright Assignment Policies

109. NFPA's standards development process incorporates significant creative input from three primary groups of participants. These include (i) members of the public who provide input and comment; (ii) the members of the Technical Committees who consider and vote on proposed changes to the standards; and (iii) the NFPA staff who assist and advise the Technical Committees and who draft and finalize the wording of the actual document that becomes the standard. Pauley Decl. ¶ 24.

110. Members of the public participate in NFPA's standards development process by submitting public input, including proposed changes to NFPA standards and comments on proposed changes. Pauley Decl. ¶ 27.

111. Members of the public who make contributions to the standards development process understand and intend that NFPA will own the copyright in their contributions and in the standards. Pauley Decl. ¶ 28.

112. NFPA has a policy that all persons who submit public input must assign all rights, including copyright, in their contributions to NFPA. NFPA does not accept public input without a signed copyright assignment, which is printed on the standard forms by which members of the public submit input. Pauley Decl. ¶ 27; Rubel Decl. ¶ 9, Ex. 6 (Dubay Dep. at 212:17-21).

113. NFPA staff check every public input that NFPA receives to ensure that the appropriate copyright assignment has been executed. Rubel Decl. ¶ 9, Ex. 6 (Dubay Dep. at 144:8-145:15.)

114. The NFPA Technical Committees are the principal consensus bodies responsible for the development and revision of NFPA standards. The Technical Committees are composed of volunteers from business, industry, public interest groups, government and academia, and

others. The Technical Committees meet to consider and vote on proposals submitted by the public, and to reach consensus on appropriate revisions to the standards. Pauley Decl. ¶¶ 32-33; Rubel Decl. ¶ 9, Ex. 6 (Dubay Dep. at 52:1-15).

115. NFPA has a policy that all members of the Technical Committees submit Committee applications that include an agreement that all material authored by the Committee will be works made for hire for NFPA, and additionally an assignment of all and full rights in copyright in their work as a member of the Technical Committee to NFPA. Pauley Decl. ¶¶ 34-35; Golinveaux Decl. ¶ 11; Rubel Decl. ¶ 9, Ex. 6 (Dubay Dep. at 105:12-21).

116. Members of Technical Committees who participate in the Standards Development Process understand and intend that their contributions are owned by NFPA and that NFPA owns the copyright in the final standards. Pauley Decl. ¶¶ 36-37; Golinveaux Decl. ¶¶ 12-13.

117. NFPA employees also participate in NFPA's standards development process in the course of their employment. Each Technical Committee has a NFPA staff liaison who facilitates and runs the Committee meetings, provides advice to the Committee, and records the decisions made by the Committee. NFPA employees also work with the Committee and with each other to craft appropriate wording that accurately captures the intent of Committee decisions, and revise and finalize the wording of the actual document that becomes the standard. Pauley Decl. ¶¶ 38-40; Rubel Decl. ¶ 9, Ex. 6 (Dubay Dep. at 54:19-56:12, 66:20-67:12, 69:2-18).

118. NFPA employees engage in multiple layers of quality control procedures to ensure the quality and integrity of the content of the standards. NFPA employees edit and revise the language of the NEC to ensure that it conforms to the requirements in the NFPA style manual, to ensure consistency across the different sections of the NEC, and to finalize the

language of the standard for balloting. Pauley Decl. ¶ 41; Rubel Decl. ¶ 9, Ex. 6 (Dubay Dep. at 31:18-33:24, 59:19-62:5).

119. Each NFPA standard goes through two full rounds of public input, comments, review and drafts before being finalized. The process results in the issuance of sophisticated and complex works that support NFPA's mission of promoting public safety. For example, developing a new edition of the NEC involves consideration of thousands of comments and proposals from the public, the participation of hundreds of Technical Committee members in multiple rounds of intensive multi-day meetings, and the active assistance of dozens of NFPA staff. Pauley Decl. ¶¶ 19, 23, 42.

NFPA's Copyright Registrations

120. NFPA has a copyright registration certificate (U.S. Copyright Reg. No. TX 7-297-325) for the 2011 edition of the NEC, which identifies NFPA as the author and owner of the work. Berry Decl. ¶ 2 and Ex. A.

121. NFPA has a copyright registration certificate (U.S. Copyright Reg. No. TX 7-935-064) for the 2014 edition of the NEC, which identifies NFPA as the author and owner of the work. Berry Decl. ¶ 3 and Ex. B.

122. NFPA is not aware of any other person who claims to have a copyright interest in any NFPA standard. Pauley Decl. ¶ 26.

NFPA's Trademarks

123. NFPA owns incontestable U.S. federal trademark registrations for the trademarks National Fire Protection Association (U.S. Trademark Reg. No. 3,165,010) and NFPA (U.S. Trademark Reg. No. 3,141,884) in connection with books containing fire, electrical and building safety codes and standards; electronic publications, namely books containing fire, electrical and

building safety codes and standards recorded on computer media; and certain other areas. NFPA has used the National Fire Protection Association trademark since 1896 and the NFPA trademark since at least 1900. Berry Decl. ¶¶ 4-5 and Exs. C-D.

124. NFPA owns an incontestable U.S. federal trademark registration for the following logo:



(U.S. Reg. No. 2,834,633) in connection with similar goods and services. NFPA has used this trademark since 1993. Berry Decl. ¶ 6 and Ex. E.

125. NFPA owns incontestable U.S. federal trademark registrations for the trademarks National Electrical Code (U.S. Reg. No. 1,094,460), NFPA 70 (U.S. Reg. No. 3,354,321), and NEC (U.S. Reg. No. 1,165,496) in connection with publications in the field of fire safety. NFPA has used the National Electrical Code trademark since at least 1911, the NFPA 70 trademark since at least 1953, and the NEC trademark since at least 1973. Berry Decl. ¶ 7-8 and Exs. F-H.

126. NFPA owns an incontestable U.S. federal trademark registration for the following logo:



(U.S. Reg. No. 1,148,903) in connection with similar goods and services. NFPA has used this trademark since at least 1978. Berry Decl. ¶ 9 and Ex. I.

127. NFPA's longstanding use of its trademarks in connection with its high quality standards has resulted in the public's association of NFPA's marks with a certain quality. Pauley Decl. ¶ 53.

128. Defendant admits that the NFPA word mark and logo are well known. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 14:25-15:11).

C. AMERICAN SOCIETY FOR HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS

129. The American Society for Heating, Refrigerating and Air Conditioning Engineers ("ASHRAE") is a non-profit organization that operates with the mission of advancing the arts and sciences of heating, ventilating, air conditioning and refrigerating to serve humanity and promote a sustainable world. Declaration of Stephanie Reiniche ("Reiniche Decl.") ¶ 2.

130. ASHRAE has developed and maintains over 100 consensus based standards. These standards, based on ASHRAE's expertise in HVAC/R systems, pertain to a variety of fields within the building industry, such as energy efficiency, indoor air quality, refrigeration, and sustainability. Reiniche Decl. ¶ 2.

131. The primary users of ASHRAE's standards include builders, architects, and heating, air-conditioning, and refrigeration manufacturers who use the standards in their businesses. Reiniche Decl. ¶ 17.

132. The specific ASHRAE standard at issue here is ASHRAE 90.1 (in particular the 2004, 2007, and 2010 versions of 90.1). ASHRAE 90.1 pertains to energy efficiency in commercial and high-rise residential buildings. It is a "continuous maintenance" standard,

meaning that it is supplemented with addenda every 18 months and a new version of the standard is released every three years. Reiniche Decl. ¶¶ 3, 5.

133. There are other organizations that develop standards that address the same or similar subjects as ASHRAE's standards and may compete with ASHRAE standards. For instance, the International Code Council maintains a code addressing building efficiency, the International Energy Conservation Code, which addresses similar concerns to ASHRAE 90.1. *See* Rubel Decl. ¶ 10, Ex. 7 (Reiniche Dep. at 31:6-32:8).

134. Some ASHRAE standards, including ASHRAE 90.1, have been incorporated by reference into laws and regulations. However, ASHRAE does not develop its codes for the purpose of being incorporated by reference, and ASHRAE has developed and maintains numerous standards that have not been incorporated by reference. Reiniche Decl. ¶ 3; *see also* Rubel Decl. ¶ 10, Ex. 7 (Reiniche Dep. 98:25-99:16).

ASHRAE's Standard Development Process

135. ASHRAE's standards, including ASHRAE 90.1, are developed with input from a project committee comprised of experts in the field, including utilities representatives, engineers, manufacturers, trade organization representatives, and architects. The project committee members are selected to ensure a balanced representation of different interest groups. Reiniche Decl. ¶ 6.

136. The drafting of ASHRAE standards, including 90.1, involves input from the many participants in the development process, including members of the public who are provided an opportunity to comment on draft standards. Changes to standards language, whether proposed by committee members or the public, are voted on, subject to extensive discussion, and often

altered by the committee so that the finished standard reflects a consensus of all involved parties rather than the work of any one individual. Reiniche Decl. ¶¶ 6-8.

137. For each ASHRAE standard, ASHRAE assigns one or more staff liaisons to work with that standard's project committee. For ASHRAE 90.1, the liaison is Steve Ferguson, an engineer who has worked on Standard 90.1 for ten years. Reiniche Decl. ¶ 9.

138. ASHRAE staff liaisons have a variety of job responsibilities related to facilitating the creation of ASHRAE standards. The liaisons responsibilities include attending and recording minutes of meetings of the project committee, recording changes to the standards that are proposed in committee meetings, and aiding the committees in crafting standards. Reiniche Decl. ¶ 10-11.

139. For instance, the staff liaisons review all proposed changes and drafts of the standards to make sure they are written in the proper format, comply with ANSI and ASHRAE guidelines, and are both technically and editorially consistent. If a proposed change to the language of a standard is inconsistent with other aspects of the standard or improperly formatted, the liaison can suggest changes that would then be submitted to the project committee for further consideration and voting. Additionally, the liaisons provides the project committee with the comments and proposals submitted by the public and reviews and edits the committees responses to these public comments. Reiniche Decl. ¶ 10-11.; Rubel Decl. ¶ 10, Ex. 7 (Reiniche Dep. at 35:23-38:2; 97:13-98:19).

140. Every three years, when ASHRAE performs a roll-up of all proposed changes and edits to a standard under continuous maintenance, like ASHRAE 90.1, the staff liaison and other ASHRAE staff will work with certain members of the project committee to perform a final

review and edit of the new version of each standard to make sure that all proposed changes have been properly incorporated. Reiniche Decl. ¶ 11.

141. ASHRAE staff are also responsible for maintaining and updating several sections of the ASHRAE standards, including a short policy statement at the outset of each standard and guidelines for the public comment procedure on each standard. Reiniche Decl. ¶ 11.

ASHRAE's Copyrights

142. ASHRAE members, project committee members, and public commenters on ASHRAE standards understand that they do not hold copyrights in the completed ASHRAE standards. Reiniche Decl. at ¶ 12.

143. Anyone who contributed to the ASHRAE standards at issue here, i.e. the 2004, 2007 and 2010 versions of ASHRAE 90.1, whether a project committee member or a member of the public submitting a comments, would have been required by ASHRAE to execute an Application for Membership on an ASHRAE Committee or a Form for Commenting on a Public Review Draft ASHRAE Standard. Both forms contain the following language: "I understand that I acquire no rights in publication of such documents in which my contributions or other similar analogous form are used." Reiniche Decl. ¶ 13 and Exs. 1-2.

144. ASHRAE does not permit changes to its forms and is unaware of any instance where a commenter to Standards 90.1-2004, 90.1-2007, or 90.1-2010 altered the standard forms or refused to sign an acknowledgment that the individual acquired no rights in the ASHRAE standards. Any comments made without first executing one of ASHRAE's standard forms would be an exception to ASHRAE's general practices and policies. Reiniche Decl. ¶ 14.

145. To ASHRAE's knowledge, no members of the 90.1 project committee or members of the public who commented on 90.1 have contested ASHRAE's copyright rights in the standard or claimed an ownership interest in any part of ASHRAE 90.1. Reiniche Decl. ¶ 15.

146. ASHRAE has valid copyright registrations for the 2004, 2007, and 2010 versions of ASHRAE 90.1. Each registration specifically identifies ASHRAE as the owner of the copyright. Reiniche Decl. Exs. 3-5.

147. ASHRAE alerts members of the public (and everyone who participates in the creation of its standards) to its copyrights by conspicuously placing notice of its copyrights on each of these standards. Reiniche Decl. ¶ 15.

ASHRAE's Trademarks

148. ASHRAE also holds registered trademarks for the marks displayed in its Standards and used by ASHRAE. Reiniche Decl. ¶ 16.

149. ASHRAE owns a registration for the following logo:



(U.S. Registration No. 1,503,000).

150. ASHRAE has used this mark in commerce since 1959 in connection with the sale and dissemination of its standards. ASHRAE has also filed a Section 15 declaration in support of the incontestability of this mark. Reiniche Decl. ¶ 16 and Ex. 6.

151. ASHRAE also holds a registration for the following mark:



(U.S. Registration No. 4,262,297). This mark is also used in conjunction with ASHRAE's standards and often prominently affixed on the standards. ASHRAE considers these marks to be valuable assets that are associated with ASHRAE's standards as well as the organization's goodwill. Reiniche Decl. ¶ 16 and Ex. 7; *see also* Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 151).

Funding the Costs of Developing ASHRAE's Standards

152. ASHRAE spends substantial resources drafting and updating its standards. ASHRAE's expenses include employing staff who facilitate the standards-creation process, including arranging and paying for committee meetings and collecting public input on standards. For Standard 90.1 alone, the updating process involves tens of thousands of man-hours, and ASHRAE spent more than \$1 million to cover standards-development. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 76); *see also* Rubel Decl. ¶ 10, Ex. 7 (Reiniche Dep. at 203:20-205:2).

153. ASHRAE expends significant resources developing standards with an understanding that it can then sell copyrighted standards to support its operations. However, that business model is threatened by Defendant's infringement. *See* Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 6, 76, 107-111).

154. ASHRAE depends on the sale of standards and revenue from membership dues to fund its operations. For ASHRAE, membership revenue is associated with the revenue from dissemination of standards as membership benefits include receiving print copies and online

access to certain ASHRAE publications and significant discounts on purchasing ASHRAE publication. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 22, 95, 134).

155. ASHRAE also derives revenue from ancillary or complimentary products for which its copyrighted standards give ASHRAE a competitive advantage. For instance, ASHRAE's training programs can freely use the text of ASHRAE standards and/or disseminate course materials containing the standards while competitors cannot. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 143-49).

156. If these sources of revenue are lost, it would seriously threaten ASHRAE's current business model and ability to continue funding its standards creation and maintenance operations at their current levels. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 6, 138).

The Reasonable Availability of ASHRAE's Standards

157. ASHRAE publishes its standards in hard copy and digital PDF files, which can be purchased from ASHRAE or its authorized resellers. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 99); Rubel Decl. ¶ 11, Ex. 8 (Comstock Dep. at 104:21-106:23).

158. ASHRAE offers its standards for sale at moderate prices that do not impose an undue burden to those who wish to purchase the standards. Prices typically range from \$25 to \$120, with no standard costing more than \$200. Reiniche Decl. ¶ 18; Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rept. ¶ 99); *see also* Rubel Decl. ¶ 11, Ex. 8 (Comstock Dep. at 29:9-17).

159. The standards are priced moderately on the basis of ASHRAE's costs and ASHRAE does not charge more for standards that have been incorporated into laws or regulations. Reiniche Decl. ¶ 18; Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rept. ¶ 101).

160. ASHRAE also offers discounts for libraries, educational uses, government entities, and individuals or entities who purchase the standards on a subscription basis. Reiniche Decl. ¶ 18; Rubel Decl. ¶ 11, Ex. 8 (Comstock Dep. at 106:19-22).

161. ASHRAE provides the public with free read-only access to many ASHRAE standards through the ASHRAE website. In particular, access is provided to standards that have been incorporated by reference into codes, including the versions of Standard 90.1 at issue here. Reiniche Decl. ¶ 19-20.

162. ASHRAE has not received complaints about the accessibility of its standards, other than from the Defendant in this case. Reiniche Decl. ¶ 19-20; Rubel Decl. ¶ 10, Ex. 7 (Reiniche Dep. at 124:17-125:7).

II. PUBLIC.RESOURCE.ORG, INC.’S INFRINGEMENT OF PLAINTIFFS’ INTELLECTUAL PROPERTY

A. BACKGROUND

163. Carl Malamud is the founder and only employee of Defendant Public.Resource.Org, Inc. (“Public Resource” or “Defendant”). Rubel Decl. ¶ 5, Ex. 2 (30(b)(6) Deposition of Public.Resource.Org (“PR Dep.”) at 23:3-25, 30:12-14).

164. Defendant admits that the NFPA “does amazing work and saves lives.” Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 305:15-19).

165. Defendant also admits that NFPA’s standards protect the lives of volunteer firefighters and children. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 306:3-20); Rubel Decl. ¶ 17, Ex. 13 (Ex. 55 to PR Dep.).

166. Defendant claims to be a “big fan of ASTM” and recognizes that “the subject area of the standards that ASTM works in is very important and we need to continue to have standards in that area.” Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 307:9-15).

167. Defendant admits that “ASHRAE Standard 90.1 is an important standard.” Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 307:24-308:4).

168. There is no evidence that any person who was attempting to comply with a regulation that incorporates by reference any of Plaintiffs’ standards was unable to access the standard. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 71:3-77:24).

B. DEFENDANT ADMITTED THAT PLAINTIFFS OWN COPYRIGHTS IN THE WORKS AND IT DOES NOT OWN THE COPYRIGHT IN THE WORKS

169. Neither Defendant nor Mr. Malamud claims to own the copyright in any of the standards at issue. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 108:25-109:11).

170. Defendant is not aware of any evidence that any participants in the process of developing Plaintiffs’ standards claim to be owners of the copyrights in any of the standards at issue. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 83:16-85:17).

171. Malamud himself has acknowledged that the standards “have a strong copyright interest” until they are “incorporated by reference in the Code of Federal Regulations.” Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 89:8-18); Rubel Decl. ¶ 18, Ex. 14 (Ex. 33 to PR Dep.). Malamud has also acknowledged that Plaintiffs’ standards are “heavily copyrighted” and that “the standards bodies were very aggressive in claiming copyright on those documents.” Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 99:3-100:19).

C. DEFENDANT’S UNSUCCESSFUL EFFORTS TO FIND SUPPORT FOR ITS POSITION IN CONGRESS AND EXECUTIVE AGENCIES

172. Mr. Malamud testified before Congress in favor of amending the Copyright Act to reflect his belief that materials incorporated by reference into government regulations lose their copyright protection. Congress has not amended the statute as Mr. Malamud requested. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 232:14-19).

173. Defendant also submitted comments to various executive agencies and offices requesting that policies and regulations be changed to state that materials incorporated by reference into government regulations must be available at no cost to the general public. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 232:21-233:5).

174. For example, Defendant submitted comments reflecting his beliefs in connection with proposed rulemaking regarding the procedures of the Office of the Federal Register and the National Archives and Records Administration, proposed amendments to the Office of Management and Budget's Circular A-119, and a study by the Administrative Conference of the United States. O'Brien Decl. ¶ 66.

175. Each of these agencies and offices considered and ultimately rejected Defendant's comments and proposals, reaffirming their positions that materials incorporated by reference in federal regulations do not lose their copyright protection and do not need to be made publicly available on the internet at no cost. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 232:14-234:8).

176. Defendant also submitted Freedom of Information Act ("FOIA") requests to a number of executive agencies requesting copies of standards that are incorporated by reference in federal regulations. Rubel Decl. ¶ 12, Ex. 9.

177. No agency has provided Defendant with copies of the standards it has requested through these FOIA requests. Numerous federal agencies have explicitly taken the position in communications with Defendant that incorporation by reference of materials into regulations does not destroy the copyright in those materials. Rubel Decl. ¶ 13, Ex. 10.

D. DEFENDANT’S COPYRIGHT INFRINGEMENT

1. Defendant’s Unauthorized Copying, Display and Distribution of Plaintiffs’ Standards On Its Website

178. Defendant obtained hard copies of Plaintiffs’ standards purposely so that it did not have to agree to the terms of use on Plaintiffs’ websites. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 63:12-64:23).

179. Defendant stated that ASTM’s standards “can’t be taken in violation of terms of use unless me and our legal folks have scrubbed the situation very carefully.” Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 172:14-19); Rubel Decl. ¶ 19, Ex. 15 (Ex. 69 to C. Malamud Dep.).

180. Nonetheless, Defendant asked a student to download copies of certain ASTM standards from ASTM’s website on the condition that he do so secretly. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 172:14-19, 177:1-178:11); Rubel Decl. ¶ 19, Ex. 15 (Ex. 69 to C. Malamud Dep.) (“You need to stay both anonymous and mum on this. No bragging about it, talking about it. And I’m not going to do that either.”).

181. Defendant next searched federal and state regulations for examples of standards that had been incorporated by reference and then tried to obtain paper copies of those standards. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 156:21-157:1).

182. Mr. Malamud scanned the paper copies he was able to buy into PDFs and used optical character recognition (“OCR”) software to convert the images of the scanned pages into text. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 156:21-157:2, 224:8-13).

183. Defendant added an introductory page to the beginning of each PDF. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 156:15-157:5).

184. The introductory page was labeled as a “Certificate” with a border depicting stars and stripes, a stamp of approval, and a designation of the Executive Director of the Office of the

Federal Register as the “Official Incorporator.” The page states that the document has been incorporated by reference and “shall be considered legally binding upon all citizens and residents of the United States of America” and that “[c]riminal penalties may apply for non-compliance.” *See, e.g.*, Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 224:14-17); Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 127:4-13); Rubel Decl. ¶ 20, Ex. 16 (Ex. 63 to C. Malamud Dep.).

185. In December 2102, Defendant posted the PDFs, including the text created by the OCR software, on Defendant’s website and on the Internet Archive. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 156:15-159:6).

186. Defendant kept the standards posted on its website and the Internet Archive until after the Complaint was filed, and Defendant did not remove the standards from its website or the Internet Archive until on or about November 10, 2015, at the suggestion of the Court. O’Brien Decl. ¶ 69; Reiniche Decl. ¶ 20; Berry Decl. ¶ 13.

187. Defendant posted PDF versions of each of the standards at issue in this litigation on its website. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 158:22-159:6).

188. Defendant hired a firm called HTC Global Services to convert the text of some of ASTM and NFPA’s standards into HTML format and to convert the images in these standards into JPG format. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 159:19-160:7, 162:13-163:17).

189. Defendant instructed HTC Global to copy all of the text of the standards word for word into HTML code. Rubel Decl. ¶ 8, Ex. 5 (HTC Dep. at 24:16-25:5).

190. Defendant instructed HTC Global to “double-key” the standards, which means that two operators independently type the text and then compare the two versions, instead of using a more accurate, but more expensive, “triple-key” methodology in which three independent operators would have typed the text. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 165:2-

171:1); Rubel Decl. ¶ 8, Ex. 5 (HTC Dep. at 35:23-36:7); Rubel Decl. ¶ 21, Ex. 17 (Ex. 2 to HTC Global Dep.).

191. By taking the cheaper route, Defendant knew that there could be up to 49 errors on a typical two and a half page document. Rubel Decl. ¶ 8, Ex. 5 (HTC Dep. at 36:12-37:19, 105:16-106:11).

192. HTC Global's representative testified that what it described as "double-keying" would actually involve extracting text obtained using OCR, unless the image quality of the original document was poor, in which case two operators entered the text. Rubel Decl. ¶ 8, Ex. 5 (HTC Dep. at 34:23-35:6, 41:24-42:13). This was done even though using OCR to capture the text from PDF versions of Plaintiffs' standards was likely to result in errors. *See* Rubel Decl. ¶ 22, Ex. 18 (Fruchterman Dep. at 184:21-185:11) (explaining potential for OCR errors in technical documents).

193. Defendant suspected that HTC Global may be using OCR instead of having two operators enter the text. Defendant's CEO, Mr. Malamud, communicated to his wife that all of the documents had only been double-keyed "in theory" but that HTC "may cheat and do OCR first and then their QA." Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 171:21-172:20); Rubel Decl. ¶ 23, Ex. 19 (Ex. 21 to Point.B Studio Dep.).

194. HTC Global's rekeying of Plaintiffs' standards was done by non-native English speakers in India with no technical expertise. Rubel Decl. ¶ 8, Ex. 5 (HTC Dep. at 30:24-32:16).

195. Defendant posted on its website the HTML files derived from Plaintiffs' standards that were created by HTC Global. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 183:20-184:5).

196. Defendant admitted that its rekeying of the standards was “simply recover[ing] text,” and that it would not “start adding true value” until it rekeyed the mathematical formulas, adding section ID headers, and converting the graphics to vector format. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 58:2-8, 60:17-61:7); Rubel Decl. ¶ 24, Ex. 20 (Ex. 57 to C. Malamud Dep.).

197. Defendant hired Point.B Studio, which is a business name of Mr. Malamud’s wife, Rebecca Malamud, to convert the diagrams, figures, graphs, illustrations and formulas from certain ASTM and NFPA standards from JPG format to SVG and/or MathML format. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 184:22-185:4).

198. Defendant instructed Point.B Studio to reproduce exact copies of the relevant materials within Plaintiffs’ standards. *See* Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 116:23-117:5 and 120:9-14); Rubel Decl. ¶ 25, Ex. 21 (Ex. 62 to C. Malamud Dep.) (“Exact copy has been the absolutely positively 100% important criteria the whole time...[if there is any question in my mind that you are not making exact copies, I have to fire you.”]).

199. Point.B Studio used children from a mentoring program whose target audience was 7-14 to convert formulas to MathML and drawings to SVG format for use on materials posted on Defendant’s website. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 188:4-191:6); Rubel Decl. ¶ 7, Ex. 4 (Point.B Studio Dep. at 42:24- 43:10, 87:4-18); Rubel Decl. ¶ 26, Ex. 22 (Ex. 18 to Point.B Studio Dep.);

200. The children were not paid for the work they did. Rubel Decl. ¶ 7, Ex. 4 (Point.B Studio Dep. at 47:3-13).

201. Defendant posted on its website versions of some of Plaintiffs' standards that contain the drawings, diagrams, figures and/or formulas that had been created by Point.B Studio. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 194:14-20).

202. Anyone accessing the versions of Plaintiffs' standards from Defendant's website can save the materials onto their own devices, print them, or post them to another website. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 68:25-69:19).

203. Defendant did not obtain the consent of any of the Plaintiffs before posting copies of their standards on its website. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 204:7-12).

2. Defendant's Unauthorized Display and Distribution of Plaintiffs' Standards On the Internet Archive

204. In addition, Defendant posted many of the PDF versions of the standards to the Internet Archive website. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 195:25-196:18).

205. In posting the standards on the Internet Archive, Defendant identified "author" as one type of metadata that he would provide for each standard. Defendant identified NFPA as the author of each of the versions of the NFPA standards it posted on the Internet Archive. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 274:17-275:10, 280:14-282:11, 288:9-290:16); Rubel Decl. ¶ 27, Ex. 23 (Exs. 52 and 53 to PR Dep.).

206. Defendant identified ASTM as the author of each of the versions of the ASTM standards it posted on the Internet Archive. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 199:21-201:5); Rubel Decl. ¶ 48, Ex. 43 (Ex. 70. To C. Malamud Dep.).

207. Defendant identified Creative Commons Universal license 1.0 as a license that applied to each of the standards it posted on the Internet Archive. For each standard, Defendant included a link to the CCO 1.0 Universal license. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 263:22-265:20).

208. The CCO 1.0 Universal license states: “The person who associated a work with this deed has dedicated the work to the public domain by waiving all of his or her rights to the work worldwide under copyright law . . . You can copy, modify, distribute and perform the work, even for commercial purposes, all without asking permission.” Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 265:22-270:9); Rubel Decl. ¶ 28, Ex. 24 (Ex. 75 to C. Malamud Dep.).

209. Members of the public can obtain PDF versions of the Plaintiffs’ standards from the Internet Archive, save them and then use them in any manner, including by printing copies. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 277:16-279:13).

E. DEFENDANT’S TRADEMARK INFRINGEMENT

1. Defendant Used Plaintiffs’ Trademarks.

210. Defendant used Plaintiffs’ trademarks on the copies of Plaintiffs’ standards that Defendant created and posted on its website and on the Internet Archive website. *See, e.g.*, Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 127:4-13, 127:22-128:9); Rubel Decl. ¶ 20, Ex. 16 (Ex. 63 to C. Malamud Dep.) (using ASTM International logo, ASTM logo, and ASTM word mark); Rubel Decl. ¶ 29, Ex. 25 (using ASHRAE logos – U.S. Reg. No. 4,262,297); Rubel Decl. ¶ 30, Ex. 26 (using National Electrical Code, National Fire Protection Association, and NEC word marks and NFPA and NEC logos).

211. Additionally, Defendant used certain of Plaintiffs’ marks within tables it created on its website and on the Internet Archive when identifying the authors and names of the standards. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 141:11-23, 151:6-22, 274:17-275:10, 288:9-14); Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 199:21-200:6); Rubel Decl. ¶ 31, Ex. 27 (Ex. 38 to PR Dep.) (using ASTM, American Society for Testing and Materials, NFPA, National Fire Protection Association, National Electrical Code, and ASHRAE marks), Rubel Decl. ¶ 32, Ex.

28 (Ex. 40 to PR Dep.) (using ASHRAE, NEC and ASTM marks); Rubel Decl. ¶ 27, Ex. 23 (Exs. 52 and 53 from PR Dep.) (using National Fire Protection Association, NFPA, National Electrical Code, and NEC marks).

212. Defendant's goal is to make the logos used on the standards and the contents of the standards as close as possible to the actual standards published by the Plaintiffs. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 28:25-29:8).

213. Defendant intends for people who view each standard posted on its website and/or the Internet Archive to think it is "a scan of the exact standard" or an HTML version of the exact standard published by the Plaintiffs. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 46:14-47:9). Defendant claims that he must post the entirety of each standard to his website because "Defendant is "not in a position to decide which portions of that document are or [are] not the law." Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 32:16-33:4).

2. The Versions of Plaintiffs' Standards Posted by Defendant Contain Errors.

214. The PDF versions of Plaintiffs' standards on Defendant's website contain errors, including pages that are missing or that are upside down. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 127:8-13, 128:19-130:4, 147:19-148:1); Rubel Decl. ¶ 20, Ex. 16 (Ex. 63. to C. Malamud Dep.)

215. The HTML versions of Plaintiffs' standards on Defendant's website contain errors, including text and numbers that differ from the information in the authentic versions of Plaintiffs' standards. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 127:4-139:8); Rubel Decl. ¶ 20, Ex. 16 (Ex. 63 to C. Malamud Dep.); Rubel Decl. ¶ 33, Ex. 29 (Ex. 64 to C. Malamud Dep.).

216. Mr. Malamud has no explanation for these mistakes and admits that they are not acceptable. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 140:19-141:6).

217. Mr. Malamud claimed that if he were notified of any mistakes, he would do a rigorous quality assurance check and correct any mistakes. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 140:19-25).

218. However, even after being notified of specific errors at his deposition, Defendant never corrected these mistakes and continued to maintain versions of standards with “unacceptable mistakes” that bear Plaintiffs’ trademarks on its website until it recently removed all of its copies of Plaintiffs’ standards at issue in this case from its website at the Court’s suggestion. Rubel Decl. ¶ 16.

219. The errors in the HTML version of the 2011 NEC that Defendant posted on the internet include numerous errors that distort the meaning of substantive provisions of the standard that were written to protect human safety and prevent property damage. Pauley Decl. ¶ 54.

220. Malamud admits that he does not know what quality control procedures Plaintiffs use when publishing their standards. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 102:23-104:12, 109:7-110:4).

F. DEFENDANT SEEKS TO USURP THE MARKET FOR PLAINTIFFS’ STANDARDS.

221. Public Resource embarked on this project with the explicit purpose of encouraging the public to access Plaintiffs’ Works and use them as they see fit, including downloading, printing, and making derivative works. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 85:1-89:10).

222. Defendant made a point of informing the public that its versions of Plaintiffs’ Works were available in open access without restriction. *See, e.g.*, Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 63:1-64:3, 66:13-68:4); Rubel Decl. ¶ 34, Ex. 30 (Ex. 58. to C. Malamud Dep.)

223. Defendant also offers its website as an alternative to the platforms on which Plaintiffs provide free public access to their standards. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 76:14-77:8, 80:20-86:15); Rubel Decl. ¶ 35, Ex. 31 (Ex. 59. to C. Malamud Dep.).

224. Defendant has publicly declared that Plaintiffs' standards are in the public domain and cannot be copyrighted, and has encouraged members of the public to download them from Defendant's website without paying for them. Rubel Decl. ¶ 36, Ex. 32.

225. Mr. Malamud told a potential funder that one of Defendant's goals was to "have more users" of standards than the "SDO-provided websites," and further emphasized that Defendant would "like to be No. 1 in the marketplace." Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 297:25-298:11, 308:3-309:16); Rubel Decl. ¶ 37, Ex. 33 (Ex. 77 to C. Malamud Dep.).

226. Defendant attempted to drive traffic to its website, including by engaging in "search engine optimization" to appear higher in Google search results in an attempt to attract visitors. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 142:10-143:2); Rubel Decl. ¶ 38, Ex. 34 (Ex. 65 to C. Malamud Dep.).

G. DEFENDANT'S USE OF PLAINTIFFS' STANDARDS IN FUNDRAISING EFFORTS

227. Defendant had an unsuccessful Kickstarter campaign to raise money for his double-keying of standards. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 55:13-56:3).

228. Defendant discussed his copying of Plaintiffs' standards in connection with his efforts to raise funds through this Kickstarter campaign, including the number of ASTM and NFPA standards it had copied. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 56:4-58:17, 62:3-65:16, 76:14-77:16); Rubel Decl. ¶ 24, Ex. 20 (Ex. 57 to C. Malamud Dep.); Rubel Decl. ¶ 34, Ex. 30 (Ex. 58 to C. Malamud Dep.); Rubel Decl. ¶ 35, Ex. 31 (Ex. 59 to C. Malamud Dep.).

229. Several supporters of Defendant's Kickstarter campaign donated money to Defendant after the Kickstarter campaign failed. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 80:5-13).

230. Mr. Malamud wrote in an email to his wife, whom he had hired to assist him in converting Plaintiffs' standards into HTML format, that she should "make sure we've done any NFPA docs Also, we can do any ASTM or ASHRAE docs as well as those are helpful to me in my suit. ... Definitely keep plowing away on that stuff ... that's the kind of output that makes it much easier for me to try and raise money. to keep you going for the rest of the year." Rubel Decl. ¶ 7, Ex. 4 (Point.B Studio Dep. at 126:4-16); Rubel Decl. ¶ 23, Ex. 19 (Ex. 21 to Point.B Studio Dep.).

231. In another email, Mr. Malamud explained that he could continue paying Ms. Malamud as long as she continued making copies of Plaintiffs' standards because "what the funders are going to be looking at is our walking through the standards." Rubel Decl. ¶ 7, Ex. 4 (Point.B Studio Dep. at 186:8-187:2); Rubel Decl. ¶ 39, Ex. 35 (Ex. 27 to Point.B Studio Dep.).

232. In an email Mr. Malamud described his work purchasing Plaintiffs' standards to post them on the internet as "what a way to make a living." Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 239:12-17, 240:5-243:4); Rubel Decl. ¶ 40, Ex. 36 (Ex. 73 to C. Malamud Dep.).

233. Defendant's President and only employee, Carl Malamud, pays himself \$180,000 per year for his work with Defendant. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 243:21-244:4).

234. Defendant also paid Point.B Studio, its founder's wife's unincorporated company, approximately \$350,000 between 2010 and 2014. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 245:15-246:13).

H. DEFENDANT’S ACTIONS SINCE THE FILING OF THIS CASE

235. During the course of this litigation, Defendant continued to post versions of additional standards owned by Plaintiffs that use Plaintiffs’ trademarks on its website, including as recently as October 2015. O’Brien Decl. ¶ 67; Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 268:20-269:8); Rubel Decl. ¶ 41, Ex. 37 (Ex. 49 to PR Dep.).

236. Defendant has posted HTML versions of certain ASTM standards since Plaintiffs filed their Complaint that do not use the ASTM logo marks. O’Brien Decl. ¶ 68 and Ex. 18.

237. Defendant failed to provide any response to Plaintiffs’ contention interrogatories to identify any evidence in support of its affirmative defenses. Rubel Decl. ¶ 14 and Ex. 11 (never-supplemented responses to contention interrogatories).

III. CONSEQUENCES OF DEFENDANT’S INFRINGEMENT

A. PLAINTIFFS HAVE BEEN INJURED BY DEFENDANT’S INFRINGEMENT

238. Although Defendant has claimed that its infringement creates a “tremendous market opportunity” for Plaintiffs, basic economic principles indicate that Defendant’s making the standards available for free supplants these sources of revenue. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 290:8-10; Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 131, 133, 139-41).

239. Since Defendant started posting the NEC on its website and the Internet Archive website in 2012, NFPA’s sales of that code and handbook have decreased noticeably. In 2009 and 2010, the first two full years after the 2008 edition of the NEC was published, NFPA sold a total of 144,312 copies of the 2008 NEC and 41,995 copies of the 2008 NEC handbook, which contains the 2008 NEC. By contrast, in 2012 and 2013, the first two full years after the 2011 edition of the NEC was published, NFPA sold 92,631 copies of the 2011 NEC and 29,072 copies of the 2011 NEC handbook, which contains the 2011 NEC. In other words, sales of the NEC

declined by 36%, and sales of the NEC handbook declined by 31% from one cycle to the next. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 133).

240. Multiple resellers and merchants have downloaded copies of NFPA's standards that were posted on the Internet and have attempted to resell them or package them with other products for sale. These resellers have responded to cease-and-desist requests from NFPA by citing Defendant's statements that the standards are free for distribution by anyone. Berry Decl. ¶¶ 11-12.

241. Plaintiffs' standards Defendant posted on the Internet Archive were downloaded anywhere from tens to tens of thousands of times. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 206:13-207:22, 254:14-256:16); Rubel Decl. ¶ 42, Ex. 38 (Ex. 43 to PR Dep.), Rubel Decl. ¶ 43, Ex. 39 (Ex. 51 to PR Dep.).

242. NFPA's 2011 NEC was downloaded 30,350 times from the Internet Archive website. NFPA's 2014 NEC was downloaded 29,405 times from the Internet Archive website. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 254:14-256:16); Rubel Decl. ¶ 43, Ex. 39 (Ex. 51 to PR Dep.).

243. ASTM D975-07 was downloaded 159 times from the Internet Archive website. ASTM D86-07 was downloaded 75 times from the Internet Archive website. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 206:13-207:22); Rubel Decl. ¶ 42, Ex. 38 (Ex. 43 to PR Dep.).

244. Plaintiffs' standards were also "accessed" thousands of times from Defendant's website between April 2013 and February 2014 alone. Rubel Decl. ¶ 5, Ex. 2 (PR Dep. at 271:7-272:14 (defining "access" as complete or partial transfer of file from Defendant's server to another computer), 299:2-300:1 (describing relevant time period)); Rubel Decl. ¶ 44, Ex. 40 (Ex. 44 to PR Dep.); Rubel Decl. ¶ 45, Ex. 41, (Ex. 54 to PR Dep.); Rubel Decl. ¶ 46, Ex. 42 (Ex. 56

to PR Dep.) (showing 88,497 accesses of ASTM standards, 167,982 accesses of NFPA standards, and 33,147 accesses of ASHRAE standards).

245. Plaintiffs have also been injured by the loss of their ability to control dissemination of their intellectual property. Defendant's publication and distribution of versions of Plaintiffs' standards that are incomplete, contain transcription errors, or otherwise alter the content of Plaintiffs' standards severely compromise Plaintiffs' ability to protect their reputations. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 150-51).

B. PLAINTIFFS' INJURIES ARE NOT QUANTIFIABLE.

246. It is exceedingly difficult to quantify or forecast the economic impact of Defendant's activities. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 150-54).

247. Defendant does not know what people do with the versions of Plaintiffs' standards that are posted on Defendant's website. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 72:12-16).

248. Defendant has no way to identify who downloaded, made additional copies of, or printed the versions of Plaintiffs' standards from its website. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 73:25-76:5).

249. Copies of 43 of Defendant's versions of ASTM's standards at issue, with Defendant's cover page, were uploaded by "dharlanuctcom" onto the Scribd platform. *See* <https://www.scribd.com/dharlanuctcom>. Rubel Decl. ¶ 15 and Ex. 12.

250. There is no evidence that Defendant's activities, which began in late 2012, have generated additional demand for Plaintiffs' standards or raised public awareness of the standards in a manner that would spur additional demand. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 140).

C. CONSEQUENCES OF CONTINUED INFRINGEMENT

251. Copyright protection provides an incentive for Plaintiffs to innovate and develop new works. If a work can be copied or sold by another entity, there may not be sufficient incentives for the author to develop the work. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 102).

252. “Plaintiffs require substantial resources to continue their standards development efforts. Revenue generated from the sale of copyrighted standards and downstream products and services based on these copyrighted standards are a key contributor to the resources needed to carry out these functions.” Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 6).

253. If the revenue from the sales of their copyrighted works and ancillary were in jeopardy, Defendants would be forced to change their behavior and their business models. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 163).

254. There is a significant risk that if Defendant’s conduct goes unchecked, it will act as a signal to the market that the creation of unauthorized versions of the standards is acceptable and Plaintiffs’ harm will be compounded over time as more people use the versions of the standards on Defendant’s website or similar websites instead of purchasing authentic versions of the standards from Plaintiffs. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 153).

255. Defendant acknowledges that “making standards more freely available . . . potentially poses a challenge to the current business models of the standards development of some standards development organizations.” Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 211:5-19).

256. Malamud has privately admitted to his supporters that he avoids discussing how his conduct will affect the business model of standards development organizations because he “can’t win that discussion” and he instead must take “an absolutist position,” which is “the only

way we can possibly win this fight.” Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 272:14-19); Rubel Decl. ¶ 47, Ex. 43 (Ex. 76 to C. Malamud Dep.).

257. Each of the Plaintiffs relies primarily on users of its standards to fund the development of the standards, rather than charging upfront fees before developing a standard. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 80).

258. Plaintiffs’ “back-loaded” business models features extremely low barriers to participating in the standards creation process but then funds the process through sale of the resulting standards. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 81, 89, 94-96, 118-21).

259. Plaintiffs could be forced to significantly alter their business models to a more “front-loaded” system that charges for participation in the standard-creation process, which would preclude the participation of certain key stakeholders and/or limit the quantity and subject matter of the standards Plaintiffs develop. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶106-11).

260. Standards developed under a front-loaded model are more likely to feature only the viewpoints of industry interests with the resources to participate in the process and are less likely to reflect the views and concerns of the general public. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶106-11).

261. Plaintiffs currently develop standards based on public demands, industry needs, and public safety concerns and advancements in technology and without concern for whether the standard will generate significant sales. Thomas Decl.¶ 13; Reiniche Decl. ¶¶ 2, 18; Pauley Decl. ¶ 11.

262. Defendant’s activities could force Plaintiffs to develop only the most popular standards or release updated versions of standards less frequently. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 126-29); Pauley Decl. ¶ 51.

263. Plaintiffs will also likely lose revenue associated with other ancillary activities that rely on or incorporate the copyrighted works, including training courses and commentary on standards. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 143, 147-48).

264. Not only do Defendant's activities jeopardize Plaintiffs' sales of their copyrighted standards, the loss of copyright protection for standards incorporated by reference would remove the competitive advantage Plaintiffs have when marketing these ancillary goods and services and would make it easier for third parties to compete for this business. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 143, 147-49).

D. EFFECTS OF UNCHECKED INFRINGEMENT ON GOVERNMENT

265. Government incorporation of privately developed standards is a cost-effective method through which government can capitalize directly on the expertise and resources available in the private sector that result in the highest quality standards covering a wide range of topics. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 51-53); Jennings Decl. ¶¶ 22-23.

266. Government and other entities rely on Plaintiffs' standards and do not have the resources or the technical expertise to develop their own standards if Plaintiffs were unable to develop them. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 52-56, 164); Jennings Decl. ¶ 24; Reinertson Decl. ¶¶ 11-14; Golinveaux Decl. ¶ 6.

267. If the standards are to continue to be developed, someone will have to pay for their development. *See* Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 123).

268. Government could fund Plaintiffs' activities, but this would be economically inefficient, would increase the tax burden on the public, and place SDOs at the mercy of funding that could be reduced or eliminated in annual agency budgeting. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶¶ 123-25).

269. The current method of charging members of the public who use a standard a reasonable price is more economically efficient than asking all members of the public to cover the costs of developing the standard through their taxes. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 124).

270. If Plaintiffs are forced to change their business models, there will be less standard development because of reduced incentives, lower quality standards because of less participant involvement, less widespread adoption due to less incorporation by reference and less public buy-in. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 164).

271. The effect of a loss of copyright protection “will be a likely reduction in the number, quality, and acceptability of critical standards and a likely increase in costs for governments, and therefore, taxpayers. This will cause harm to governments, the public, and industry actors that rely on the creation of these standards as well as to the Plaintiffs.” Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 6).

E. DEFENDANT CANNOT COMPENSATE PLAINTIFFS FOR THE HARM CAUSED BY ITS PAST OR FUTURE INFRINGEMENT

272. Public Resource has extremely limited financial resources available to pay any damages award. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 155).

273. In 2014, Defendant generated less than \$100,000 in operating income and had \$248,000 in total net assets. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 155, Tabs 6-7).

F. DEFENDANT WILL NOT BE UNFAIRLY HARMED BY A PERMANENT INJUNCTION

274. On or about November 10, 2015, Defendant removed its versions of the standards at issue in this case from its website at the suggestion of the Court. O’Brien Decl. ¶ 68.

275. Since the standards were taken down by Defendant, Plaintiffs have not received any complaints from persons regarding any alleged inability to access Plaintiffs' standards that have been incorporated by reference. O'Brien Decl. ¶ 70; Reiniche Decl. ¶ 20; Berry Decl. ¶ 13.

276. The standards at issue here are only a portion of the content on one of at least 10 websites operated by Defendant. Rubel Decl. ¶ 4, Ex. 1 (Jarosz Rep. ¶ 157).

277. Defendant admitted that there will be no long-term financial impact on Defendant if an injunction is entered. Specifically, when asked what impact Defendant's inability to continue to post standards incorporated by reference would have on Defendant's financial ability to survive long term, Mr. Malamud answered, "Probably none." Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 219:22-220:4).

278. The only harm Mr. Malamud could identify that Defendant would suffer if an injunction were entered is that it "put a tremendous amount of effort" into this project and "one hates to have wasted" that effort. Rubel Decl. ¶ 6, Ex. 3 (C. Malamud Dep. at 220:6-17).

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 1 of 30

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

<p>AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a/ ASTM INTERNATIONAL;</p> <p>NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and</p> <p>AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS,</p> <p>Plaintiffs/ Counter-Defendants,</p> <p>v.</p> <p>PUBLIC.RESOURCE.ORG, INC.,</p> <p>Defendant/ Counter-Plaintiff.</p>	<p>Case No. 1:13-cv-01215-TSC</p>
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DECLARATION OF DENNIS J. BERRY
IN SUPPORT OF PLAINTIFFS' MOTION FOR SUMMARY JUDGMENT

I, Dennis J. Berry, declare as follows:

1. I am Secretary of the Corporation and Director of Licensing for the National Fire Protection Association ("NFPA"). My duties include negotiating and overseeing NFPA's licenses for its codes and standards. The following facts are based upon my own personal knowledge, and if called upon to do so, I could and would testify competently hereto.
2. NFPA owns a United States copyright registration for the 2011 edition of the National Electrical Code. Attached hereto as Exhibit A is a true and correct copy of the registration certificate for this work.

3. NFPA owns a United States copyright registration for the 2014 edition of the National Electrical Code. Attached hereto as Exhibit B is a true and correct copy of the registration certificate for this work.

4. NFPA owns a United States trademark registration for the trademark National Fire Protection Association. Attached hereto as Exhibit C is a true and correct copy of this trademark registration.

5. NFPA owns a United States trademark registration for the trademark NFPA. Attached hereto as Exhibit D is a true and correct copy of this trademark registration.

6. NFPA owns a United States trademark registration for the NFPA logo:



Attached hereto as Exhibit E is a true and correct copy of this trademark registration.

7. NFPA owns a United States trademark registration for the trademarks National Electrical Code and NEC. Attached hereto as Exhibits F and G are true and correct copies of these trademark registrations.

8. NFPA owns a United States trademark registration for the trademark NFPA 70. Attached hereto as Exhibit H is a true and correct copy of this trademark registration.

9. NFPA owns a United States trademark registration for the NEC logo:



Attached hereto as Exhibit I is a true and correct copy of this trademark registration.

10. NFPA routinely grants permission to researchers, educators, and others to use portions of NFPA standards for educational and other non-commercial purposes at no cost.

11. Attached hereto as Exhibit J is a true and correct copy of a January 22, 2015 email to me from a merchant who attempted to sell a PDF copy of the 2014 NEC on eBay without authorization from NFPA. The reseller asserted that the standard “is public domain and is readily downloadable,” and attached a link to an electronic copy of the standard posted by Public.Resource.Org as support for that assertion. This email is a business record of NFPA, recorded at the time of its receipt, created as a regular practice of NFPA to be kept and relied on by NFPA staff in the ordinary course of business.

12. Attached hereto as Exhibit K is a true and correct copy of an October 13, 2015 email to me from a merchant who attempted to use a PDF copy of the 2014 NEC as an inducement to purchase another product on the internet without authorization from NFPA. The merchant asserted that the standard is “provided for use by the public, for free,” and attached a link to an electronic copy of the standard posted by Public.Resource.Org as support for that assertion. This email is a business record of NFPA, recorded at the time of its receipt, created as a regular practice of NFPA to be kept and relied on by NFPA staff in the ordinary course of business.

13. I understand that Defendant in this case, Public.Resource.Org, recently removed NFPA's standards from its website. NFPA has not received any complaints from any persons claiming that they were unable to access NFPA standards since that time.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct and that this declaration was executed this 18th day of November 2015 at Quincy, Massachusetts.


DENNIS J. BERRY

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 5 of 30

EXHIBIT A

Certificate of Registration Document 118-3 Filed 11/19/15 Page 6 of 30



This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Maria A. Pallante

Acting Register of Copyrights, United States of America

Registration Number

TX 7-297-325

Effective date of
registration:

December 13, 2010

Title

Title of Work: National Electrical Code, 2011 Edition

Completion/Publication

Year of Completion: 2010

Date of 1st Publication: August 25, 2010

Nation of 1st Publication: United States

Author

Author: NFPA

Author Created: text, photographs, compilation, editing, artwork

Work made for hire: Yes

Citizen of: United States

Domiciled in: United States

Copyright claimant

Copyright Claimant: NFPA

One Batterymarch Park, Quincy, MA, 02169, United States

Previous registration and year: 6-966-113 2008

Rights and Permissions

Organization Name: NFPA

Address: One Batterymarch Park

Quincy, MA 02169 United States

Certification

Name: Nancy M. Zagrodny

Date: December 8, 2010

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 7 of 30

EXHIBIT B

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 8 of 30
Certificate of Registration



This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Maria A. Pallante

Register of Copyrights, United States of America

Registration Number
TX 7-935-064

Effective date of
registration:
July 25, 2014

Title

Title of Work: National Electrical Code, 2014 Edition

Completion/Publication

Year of Completion: 2013

Date of 1st Publication: November 1, 2013

Nation of 1st Publication: United States

Author

■ Author: NFPA

Author Created: text, photographs, compilation, editing, artwork

Work made for hire: Yes

Citizen of: United States

Copyright claimant

Copyright Claimant: NFPA

One Batterymarch Park, Quincy, MA, 02169, United States

Limitation of copyright claim

Previous registration and year: 7-297-325 2011

Certification

Name: Nancy M. Zagrodny

Date: July 14, 2014

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 9 of 30

EXHIBIT C

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 10 of 30

Trademark Summary

WebTMS

Software for the Trademark Professional

Trademark

NATIONAL FIRE PROTECTION ASSOCIATION

Owner National Fire Protection Association, Inc.
1 Batterymarch Park
Quincy Massachusetts 02169
United States of America

Incorporated In Massachusetts

Address of Record

Registration details

Country	United States of America		
Application number	78729536	Application date	Oct 9 2005
Registration number	3165010	Registration date	Oct 31 2006
Status	Registered	Sub status	
File reference	376	Record reference	TM 08274
Next renewal due	Oct 31 2016	Type of registration	
Supervisor	Timothy H Hiebert	Client Reference	
Basis of filing	Actual use (Sec 1A)	Manner of use	
Type of commerce			
Signatory		Position	

Classes, Goods & Services

	Language	First use	First use in Commerce
35	Promoting the interests of the public by advocating legislation and regulation to improve fire protection, electrical standards and building safety; promoting public awareness of the need for fire and life safety; association services, namely, promoting the interests of fire and life safety professionals; testing to determine professional competence in the field of fire, electrical and building safety codes and standards; electronic and mail order catalog services featuring fire, electrical and building safety codes and standards in printed and electronic form, and featuring publications, videotapes, DVDs and CD-ROMS in the field of fire and life safety	1896-00-00	1896-00-00
41	Seminars, workshops and conferences in the field of fire and life safety and in the field of fire, electrical and building safety codes and standards; providing newsletters by e-mail in the field of fire and life safety; conducting an awards program to recognize persons who have demonstrated excellence and innovation in the fields of fire protection and life safety	1896-00-00	1896-00-00

Additional data

Limitations	
Disclaimers	
Associated marks	
Publication date	Mark in use 1896
Journal volume	National classes
Journal page	Number in series
Notice of Allowance/	Trademark region North America
Grant date	
Registry reference	Storage reference

Priorities

Type of priority	Date	Number	Country
Convention priority			
Home Registration			

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 11 of 30

EXHIBIT D

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 12 of 30

Trademark Summary

WebTMS

Software for the Trademark Professional

Trademark

NFPA

Owner **National Fire Protection Association, Inc.**
1 Batterymarch Park
Quincy Massachusetts 02169
United States of America

Incorporated in **Massachusetts**

Address of Record

Registration details

Country	United States of America		
Application number	78729540	Application date	Oct 9 2005
Registration number	3141884	Registration date	Sep 12 2006
Status	Registered	Sub status	
File reference	375	Record reference	TM 08273
Next renewal due	Sep 12 2016	Type of registration	
Supervisor	Timothy H Hiebert	Client Reference	
Basis of filing	Actual use (Sec 1A)	Manner of use	
Type of commerce			
Signatory		Position	

Classes, Goods & Services

	Language	First use	First use in Commerce
9	Videotapes, DVDs and CD-ROMs featuring information in the field of fire and life safety, sold alone or packaged as a unit with instructional booklets and brochures in the field of fire and life safety; electronic publications, namely, books containing fire, electrical and building safety codes and standards recorded on computer media	1993-00-00	1993-00-00
16	Magazines, newsletters, pamphlets, brochures and books in the field of fire and life safety; books containing fire, electrical and building safety codes and standards	1900-00-00	1900-00-00
35	Promoting the interests of the public by advocating legislation and regulation to improve fire protection, electrical standards and building safety; promoting public awareness of the need for fire and life safety; association services, namely, promoting the interests of fire and life safety professionals; testing to determine professional competence in the field of fire, electrical and building safety codes and standards; electronic and mail order catalog services featuring fire, electrical and building safety codes and standards in printed and electronic form, and featuring publications, videotapes, DVDs and CD-ROMs in the field of fire and life safety	1900-00-00	1900-00-00
41	Seminars, workshops and conferences in the field of fire and life safety and in the field of fire, electrical and building safety codes and standards; providing newsletters by e-mail in the field of fire and life safety; conducting an awards program to recognize persons who have demonstrated excellence and innovation in the fields of fire protection and life safety	1900-00-00	1900-00-00

Additional data

Limitations			
Disclaimers			
Associated marks			
Publication date	Jun 20 2006	Mark in use	
Journal volume		National classes	
Journal page		Number in series	
Notice of Allowance/		Trademark region	North America
Grant date		Storage reference	
Registry reference			

Priorities

Type of priority	Date	Number	Country
Convention priority			
Home Registration			

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 13 of 30

EXHIBIT E

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 14 of 30

Trademark Summary

WebTMS

Software for the Trademark Professional

Trademark

NFPA Logo

Owner
National Fire Protection Association, Inc.
1 Batterymarch Park
Quincy Massachusetts 02169
United States of America

Incorporated In
Massachusetts



Address of Record

Registration details

Country	United States of America		
Application number	78252924	Application date	May 22 2003
Registration number	2834633	Registration date	Apr 20 2004
Status	Registered	Sub status	
File reference	830	Record reference	TM 09356
Next renewal due	Apr 20 2024	Type of registration	
Supervisor	Timothy H Hiebert	Client Reference	
Basis of filing	Actual use (Sec 1A)	Manner of use	
Type of commerce			
Signatory		Position	

Classes, Goods & Services		Language	First use	First use in Commerce
9	Videotapes and CD-ROMS featuring information in the field of fire and life safety, sold alone or packaged as a unit with instructional booklets and brochures in the field of fire and life safety		1993-00-00	1993-00-00
16	Magazines, newsletters, pamphlets, brochures and books in the field of fire and life safety		1993-00-00	1993-00-00
35	Promoting public awareness of the need for fire and life safety; association services, namely, promoting the interests of fire and life safety professionals; electronic catalog services featuring publications, videotapes and CD-ROMS in the field of fire and life safety; mail order catalog services featuring publications, videotapes and CD-ROMS in the field of fire and life safety		1993-00-00	1993-00-00
41	Seminars, workshops and conferences in the field of fire and life safety; conducting an awards program to recognize teachers who have demonstrated excellence and innovation in the field of teaching fire and life safety; Educational testing to evaluate fire and life safety skills		1993-00-00	1993-00-00
45	Consultation in the fields of fire and life safety; providing information in the fields of fire and life safety by means of an Internet web site		1993-00-00	1993-00-00

Additional data

Limitations			
Disclaimers			
Associated marks			
Publication date	Jan 27 2004	Mark in use	
Journal volume		National classes	
Journal page		Number in series	
Notice of Allowance/		Trademark region	North America
Grant date		Storage reference	
Registry reference			

Priorities

Type of priority	Date	Number	Country
Convention priority			
Home Registration			

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 15 of 30

EXHIBIT F



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Trademarks
P.O. Box 1451
Alexandria, VA 22313-1451
www.uspto.gov

REGISTRATION NO: 1094460 SERIAL NO: 73/139480 MAILING DATE: 08/10/2007
REGISTRATION DATE: 06/27/1978
MARK: NATIONAL ELECTRICAL CODE
REGISTRATION OWNER: NATIONAL FIRE PROTECTION ASSOCIATION, IN

CORRESPONDENCE ADDRESS:

I. Stephen Samuels
Samuels & Hiebert LLC
Two International Place, 23rd Floor
BOSTON MA 02110-4104

NOTICE OF ACCEPTANCE

15 U.S.C. Sec. 1058(a)(3)

THE COMBINED AFFIDAVIT AND RENEWAL APPLICATION FILED FOR THE ABOVE-IDENTIFIED REGISTRATION MEETS THE REQUIREMENTS OF SECTION 8 OF THE TRADEMARK ACT, 15 U.S.C. Sec. 1058.

ACCORDINGLY, THE SECTION 8 AFFIDAVIT IS ACCEPTED.

NOTICE OF RENEWAL

15 U.S.C. Sec. 1059(a)

THE COMBINED AFFIDAVIT AND RENEWAL APPLICATION FILED FOR THE ABOVE-IDENTIFIED REGISTRATION MEETS THE REQUIREMENTS OF SECTION 9 OF THE TRADEMARK ACT, 15 U.S.C. Sec. 1059.

ACCORDINGLY, THE REGISTRATION IS RENEWED.

THE REGISTRATION WILL REMAIN IN FORCE FOR CLASS(ES):
016.

AHMED, DEBORAH Y
PARALEGAL SPECIALIST
POST-REGISTRATION DIVISION
571-272-9500

PLEASE SEE THE REVERSE SIDE OF THIS NOTICE FOR INFORMATION
CONCERNING REQUIREMENTS FOR MAINTAINING THIS REGISTRATION
ORIGINAL

REQUIREMENTS FOR MAINTAINING A FEDERAL TRADEMARK REGISTRATION**I) SECTION 8: AFFIDAVIT OF CONTINUED USE**

The registration shall remain in force for 10 years, except that the registration shall be canceled for failure to file an Affidavit of Continued Use under Section 8 of the Trademark Act, 15 U.S.C. Sec. 1058, at the end of each successive 10-year period following the date of registration.

Failure to file the Section 8 Affidavit will result in the cancellation of the registration.

II) SECTION 9: APPLICATION FOR RENEWAL

The registration shall remain in force for 10 years, subject to the provisions of Section 8, except that the registration shall expire for failure to file an Application for Renewal under Section 9 of the Trademark Act, 15 U.S.C. Sec. 1059, at the end of each successive 10-year period following the date of registration.

Failure to file the Application for Renewal will result in the expiration of the registration.

NO FURTHER NOTICE OR REMINDER OF THESE REQUIREMENTS WILL BE SENT TO THE REGISTRANT BY THE PATENT AND TRADEMARK OFFICE. IT IS RECOMMENDED THAT THE REGISTRANT CONTACT THE PATENT AND TRADEMARK OFFICE APPROXIMATELY ONE YEAR BEFORE THE EXPIRATION OF THE TIME PERIODS SHOWN ABOVE TO DETERMINE APPROPRIATE REQUIREMENTS AND FEES.

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 18 of 30

EXHIBIT G

United States of America

United States Patent and Trademark Office

NEC

Reg. No. 4,484,004**Registered Feb. 18, 2014****Int. Cl.: 9****TRADEMARK****PRINCIPAL REGISTER**

NATIONAL FIRE PROTECTION ASSOCIATION, INC. (MASSACHUSETTS CORPORATION)
ONE BATTERY MARCH PARK
QUINCY, MA 02169

FOR: COMPUTER SOFTWARE FOR ACCESSING DATABASES IN THE FIELD OF ELECTRICAL CODES AND STANDARDS; DOWNLOADABLE ELECTRONIC PUBLICATIONS IN THE NATURE OF BOOKS AND MANUALS IN THE FIELD OF ELECTRICAL CODES AND STANDARDS; DOWNLOADABLE SOFTWARE FOR ACCESSING DATABASES IN THE FIELD OF ELECTRICAL CODES AND STANDARDS; DOWNLOADABLE SOFTWARE IN THE NATURE OF A MOBILE APPLICATION FOR ACCESSING DATABASES IN THE FIELD OF ELECTRICAL CODES AND STANDARDS, IN CLASS 9 (U.S. CLS. 21, 23, 26, 36 AND 38).

FIRST USE 9-21-2007; IN COMMERCE 9-21-2007.

THE MARK CONSISTS OF STANDARD CHARACTERS WITHOUT CLAIM TO ANY PARTICULAR FONT, STYLE, SIZE, OR COLOR.

OWNER OF U.S. REG. NOS. 1,148,903, 2,286,580 AND OTHERS.

SER. NO. 85-924,244, FILED 5-6-2013.

SHAVEL J. MCPHERSON, EXAMINING ATTORNEY



Nichelle K. Lee

Deputy Director of the United States
Patent and Trademark Office

**REQUIREMENTS TO MAINTAIN YOUR FEDERAL
TRADEMARK REGISTRATION****WARNING: YOUR REGISTRATION WILL BE CANCELLED IF YOU DO NOT FILE THE
DOCUMENTS BELOW DURING THE SPECIFIED TIME PERIODS.****Requirements in the First Ten Years***
What and When to File:

First Filing Deadline: You must file a Declaration of Use (or Excusable Nonuse) between the 5th and 6th years after the registration date. See 15 U.S.C. §§1058, 1141k. If the declaration is accepted, the registration will continue in force for the remainder of the ten-year period, calculated from the registration date, unless cancelled by an order of the Commissioner for Trademarks or a federal court.

Second Filing Deadline: You must file a Declaration of Use (or Excusable Nonuse) and an Application for Renewal between the 9th and 10th years after the registration date.*
See 15 U.S.C. §1059.

Requirements in Successive Ten-Year Periods*
What and When to File:

You must file a Declaration of Use (or Excusable Nonuse) and an Application for Renewal between every 9th and 10th-year period, calculated from the registration date.*

Grace Period Filings*

The above documents will be accepted as timely if filed within six months after the deadlines listed above with the payment of an additional fee.

The United States Patent and Trademark Office (USPTO) will NOT send you any future notice or reminder of these filing requirements.

***ATTENTION MADRID PROTOCOL REGISTRANTS:** The holder of an international registration with an extension of protection to the United States under the Madrid Protocol must timely file the Declarations of Use (or Excusable Nonuse) referenced above directly with the USPTO. The time periods for filing are based on the U.S. registration date (not the international registration date). The deadlines and grace periods for the Declarations of Use (or Excusable Nonuse) are identical to those for nationally issued registrations. See 15 U.S.C. §§1058, 1141k. However, owners of international registrations do not file renewal applications at the USPTO. Instead, the holder must file a renewal of the underlying international registration at the International Bureau of the World Intellectual Property Organization, under Article 7 of the Madrid Protocol, before the expiration of each ten-year term of protection, calculated from the date of the international registration. See 15 U.S.C. §1141j. For more information and renewal forms for the international registration, see <http://www.wipo.int/madrid/en/>.

NOTE: Fees and requirements for maintaining registrations are subject to change. Please check the USPTO website for further information. With the exception of renewal applications for registered extensions of protection, you can file the registration maintenance documents referenced above online at <http://www.uspto.gov>.

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 21 of 30

EXHIBIT H

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 22 of 30

Trademark Summary

WebTMS
Software for the Trademark Professional

Trademark

NFPA 70

Owner **National Fire Protection Association, Inc.**
1 Batterymarch Park
Quincy Massachusetts 02169
United States of America

Incorporated in **Massachusetts**

Address of Record

Registration details

Country	United States of America		
Application number	78913310	Application date	Jun 21 2006
Registration number	3354321	Registration date	Dec 11 2007
Status	Registered	Sub status	
File reference	8081	Record reference	TM 01923
Next renewal due	Dec 11 2017	Type of registration	
Supervisor	Timothy H Hiebert	Client Reference	
Basis of filing		Manner of use	
Type of commerce			
Signatory		Position	

Classes, Goods & Services

	Language	First use	First use in Commerce
16	Periodical publications in the field of electrical and safety standards; books and handbooks in the field of electrical and safety standards	1 Jan 1953	1 Jan 1953

Additional data

Limitations			
Disclaimers			
Associated marks			
Publication date	Apr 3 2007	Mark in use	1951
Journal volume		National classes	
Journal page		Number in series	
Notice of Allowance/Grant date	Jun 26 2007	Trademark region	North America
Registry reference		Storage reference	

Priorities

Type of priority	Date	Number	Country
Convention priority			
Home Registration			

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 23 of 30

EXHIBIT I



Int. Cl.: 16

Prior U.S. Cl.: 38

United States Patent and Trademark Office

Reg. No. 1,148,903

Registered Mar. 24, 1981

TRADEMARK
Principal Register



National Fire Protection Association, Inc.
(Massachusetts corporation)
470 Atlantic Ave.
Boston, Mass. 02210

For: BOOKS PUBLISHED TRIENNIALY
CONCERNING ELECTRICAL SAFETY RE-
QUIREMENTS, in CLASS 16 (U.S. Cl. 38).

First use Nov. 10, 1978; in commerce Nov. 10,
1978.

Ser. No. 196,458, filed Dec. 11, 1978.

J. H. WEBB, Primary Examiner

JOSEPH DIAMANTE, Examiner

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 25 of 30

EXHIBIT J

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 26 of 30

From: Vacay Promo Team <vacaypromoteam@gmail.com>
Sent: Thursday, January 22, 2015 11:37 AM
To: Berry, Dennis <dberry@NFPA.org>
Subject: Re: Ebay Violation??

Hello Dennis,

Please visit <https://archive.org/details/nfpa.nec.2014> for details stating this is public domain and is readily downloadable not just through this site but many others.

Awaiting your response,

On Thu, Jan 22, 2015 at 2:22 PM, Berry, Dennis <dberry@nfpa.org> wrote:

Dear Sir or madam,

You asked me to contact you, but did not tell me who you are. Nevertheless, I am happy to respond and would like to discuss this with you further. Please feel free to call me at the number indicated below.

The 2014 National Electrical Code[®] is copyrighted by the NFPA, the title itself is a trademark of the NFPA. The Code is sold in paper and licensed in pdf format. Each pdf license includes stated restrictions that do not allow copying for further distribution. As with all NFPA standards it is available on the internet a read-only free access format. Contrary to your understanding as set out below while available in free access from the NFPA web site, it is not downloadable.

Furthermore, the NFPA has not dealt with or entered this document into creative commons. In a search of their web site just now, we could not find the Code there. If you could be more specific about where this is located, I would appreciate your direction.

As you can see from the above we do cannot accept your assertion that the document has entered the public domain and have taken steps to prevent that.

I hope this provides further information and response; again, I would be happy to discuss.

Very truly yours,

Dennis Berry

Dennis J. Berry
Secretary of the Corporation &
Director of Licensing

NFPA

One Batterymarch Park

Quincy, MA 02169

dberry@nfpa.org

[617-984-7255](tel:617-984-7255)

[617-984-7222](tel:617-984-7222) (f)

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From: Vacay Promo Team [mailto:vacaypromoteam@gmail.com]
Sent: Thursday, January 22, 2015 11:42 AM
To: Berry, Dennis
Subject: Ebay Violation??

Hello,

I recently listed the NFPA 2014 PDF on eBay for sale and it was removed after a report of intellectual property rights being violated.

This item is public domain and not a violation of any eBay rules. The licensure for this item can be found on

<http://creativecommons.org/publicdomain/zero/1.0/>

Standards Organization Source: NFPA National Electrical Code (Free Access Available Form Original Publisher)

Once Free access is granted and available for download it is public domain and there is no violation of any law to distribute the information.

Please contact me as soon as possible with information as to how to move forward.

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 29 of 30

EXHIBIT K

Case 1:13-cv-01215-TSC Document 118-3 Filed 11/19/15 Page 30 of 30

From: Scott Schwartz <scotts@dale-electric.com>
Sent: Tuesday, October 13, 2015 3:09 PM
To: Berry, Dennis <dberry@NFPA.org>
Subject: RE: Use of Electronic NEC

Dennis,

Please see the below links.

<https://law.resource.org/pub/table01.html>

<https://law.resource.org/pub/us/code/safety.html>

<https://law.resource.org/pub/us/code/ibr/nfpa.nec.2014.pdf>

This bottom link is a copy of the 2014 NEC that if provided for use by the public, for free.

If you look around the web site, you can find most of your publications online.

Scott Schwartz

From: Berry, Dennis [mailto:dberry@NFPA.org]
Sent: Tuesday, October 13, 2015 4:55 PM
To: ScottS@Dale-electric.com
Subject: Use of Electronic NEC

Dear Mr. Schwartz,

Please find enclosed a letter regarding a promotional piece which I have recently seen regarding the National Electrical Wholesale Providers. Would you please respond as soon as possible.

Very truly yours,

Dennis Berry

Dennis J. Berry
Secretary of the Corporation &
Director of Licensing
NFPA
One Batterymarch Park
Quincy, MA 02169
dberry@nfpa.org
617-984-7255
617-984-7222 (f)

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**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

<p>AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a/ ASTM INTERNATIONAL;</p> <p>NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and</p> <p>AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS,</p> <p>Plaintiffs/ Counter-Defendants,</p> <p>v.</p> <p>PUBLIC.RESOURCE.ORG, INC.,</p> <p>Defendant/ Counter-Plaintiff.</p>	<p>Case No. 1:13-cv-01215-TSC</p>
--	-----------------------------------

DECLARATION OF STEVEN CRAMER

Pursuant to 28 U.S.C. § 1746, I, Steven Cramer, declare the following statements to be true under the penalties of perjury:

1. I am over the age of 18 years and am fully competent to testify to the matters stated in this Declaration.
2. This declaration is based on my personal knowledge. If called to do so, I would and could testify to the matters stated herein.
3. I am the Vice-Provost for Teaching and Learning and Professor of Civil and Environmental Engineering at the University of Wisconsin-Madison. My research focuses on the mechanical behavior of wood and wood-based materials, the design and analysis of wood structures, and the performance of concrete construction materials.

4. I am a member of ASTM International ("ASTM"). I have been a member of ASTM since 1986.

5. From 2006-2009, I was the Chairman of ASTM's Committee D07, which is the committee that develops standards related to wood. This committee has jurisdiction over 116 ASTM standards.

6. I understood since I joined ASTM that ASTM would own the copyright in any standards or materials I helped to develop.

7. I consider my contributions to the ASTM standard development process to be contributions to my profession and to the related industries. ASTM provides the framework that allows me to make this contribution.

8. ASTM plays a stewardship role in convening a diverse group of members, providing the infrastructure that makes it possible for members to contribute ideas, and ultimately creating a usable product that members will use and from which the entire industry will benefit.

9. The process of developing, publishing and distributing standards is expensive and someone has to pay for those costs.

10. I understood since I became a member of ASTM that ASTM sell copies of all ASTM standards and uses the revenue from its sales to support the standards development process.

11. I understood since I became a member of ASTM that if I wanted a copy of an ASTM standard, including a standard that I helped to develop, I or my institution would be required to purchase it from ASTM.

12. I have renewed my membership with ASTM using ASTM's online registration system since at least 2007. As part of that process, I indicated my agreement to the following statement: "I agree, by my participation in ASTM and enjoyment of the benefits of my annual membership, to have transferred and assigned any and all interest I possess or may possess, including copyright, in the development or creation of ASTM standards or ASTM IP to ASTM." A screen shot of the membership renewal form is attached as Exhibit 1. I understand this to mean that I have assigned any and all copyrights in standards I helped to develop from 1986 to the present to ASTM.

13. I renewed my membership in ASTM for 2016. As part of the renewal process, I agreed once again to a statement indicating that I had "transferred and assigned any and all interest I possess or may possess, including copyright, in the development or creation of ASTM standards or ASTM IP to ASTM." Attached as Exhibit 2 is a screen shot of this statement in my membership renewal.

14. I am not aware of any ASTM member who claims to own the copyright in any ASTM standard.

15. The context of ASTM's operations, including the membership forms, membership renewal forms, Intellectual Property policy, and the copyright notices on each of the ASTM standards makes it very clear to all members that ASTM owns the copyrights in all ASTM standards.

16. As the Chairman of Committee D07, I did not consider how much revenue sales of a potential standard would bring to ASTM when deciding whether to approve a work item to develop a new standard. I considered whether there was a need for the proposed standard and

whether there would be sufficient interest from a balanced group necessary to develop the standard.

17. A task group puts together the first draft of a new standard. I have participated in several task groups that have drafted proposed standards that were then revised and voted upon by ASTM subcommittees and committees. In my experience, developing a standard is an iterative process. The task group works collaboratively, with many people sharing ideas, suggesting wording and providing comments that contribute to the draft standard.

18. I have also participated in developing standards through the balloting process in subcommittees and committees. Members of the subcommittee and committee that submit ballots on a proposed standard also suggest wording and provide comments on the draft. The suggestions and comments are often incorporated into the draft.

19. The ASTM standards I have participated in developing were developed based on public demands, industry needs, and public safety concerns and advancements in technology. They address a technical issue or problem identified by a group of people in the relevant sector that can be addressed with a standard-based solution.

20. The ASTM standards I have participated in developing were not developed for the purpose of being incorporated into government regulations.

21. ASTM committees composed of technical experts make decisions about the appropriate content of the standards, including the relevant measurements, values, descriptions, and other specifications, as well as the language with which to express these standards.

22. Other standard development organizations, including the American Wood Council and the American National Standards Institute, develop standards that relate to wood.

The content, language and purpose of these SDO's standards differs from the content of the ASTM standards.

23. Since joining ASTM, I was aware that all contributions I made to the process of developing a standard would be merged with the contributions of others and would result in a single standard.

24. The task group, section, subcommittee and committee structure through which ASTM standards are developed makes it apparent to all participants that their contributions will be merged with the contributions of others and will result in a single standard.

25. ASTM staff members added certain language required by the Form and Style guide to each of the standards I helped to develop.


26. ASTM staff editors also proofread and edited each one of the standards I helped to develop prior to their publication.

Dated: November 16, 2015


Steven Cramer

EXHIBIT 1

Membership Renewal



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Vivienne Kara Laufer


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My Committees

Negatives & Comments

- My Next Meetings
- My Work Items
- My Collaboration Areas
- Ballots & Voting Items
- Meetings, Minutes, Agendas
- Additional Resources


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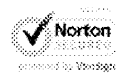
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Subtotal: \$75.00



ASTM001795

JA00345

EXHIBIT 2

Membership Renewal

Recommended

Welcome, Steven Cramer

Thank you for renewing your Participating membership. Your 2016 Membership renewal fee is \$75 U.S.

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**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

<p>AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a/ ASTM INTERNATIONAL;</p> <p>NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and</p> <p>AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS,</p> <p>Plaintiffs/ Counter-Defendants,</p> <p>v.</p> <p>PUBLIC.RESOURCE.ORG, INC.,</p> <p>Defendant/ Counter-Plaintiff.</p>	<p>Case No. 1:13-cv-01215-TSC</p>
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DECLARATION OF JAMES GOLINVEAUX

I, James Golinveaux, declare as follows:

1. I am a Senior Fellow of water suppression products at Tyco Fire Protection Products. The following facts are based upon my own personal knowledge and, if called upon to do so, I could and would testify competently hereto.
2. Tyco Fire Protection Products is a leading manufacturer of water-based fire suppression system components and ancillary building construction products. Tyco manufactures a wide variety of sprinklers, system valves and devices, piping and electrical products, and specialty systems for effective fire protection in commercial, industrial, institutional, and residential buildings.
3. I have more than 30 years of experience in the fire protection industry, and my particular field of expertise is in the development of fire sprinklers for use in buildings. I hold 21

United States and 29 foreign patents in automatic sprinkler technology, and I currently have 38 pending applications for United States and foreign patents. In 2014 I received the Henry S. Parmalee award, the American Fire Sprinkler Association's highest honor, in recognition of my work in the research and design of fire sprinklers to improve fire safety. As part of my professional activities, I travel around the world to deliver lectures and training on fire safety issues to a wide variety of audiences.

4. I am familiar with the work of the National Fire Protection Association ("NFPA"), and I have been personally involved in NFPA's standards development process for many years. For example, I have been a member of the NFPA 13 Technical Committee for more than 20 years. NFPA 13 is the Standard for the Installation of Sprinkler Systems. I have also been a Technical Committee member for several other NFPA standards, including NFPA 101, the Life Safety Code. In addition, I am currently a member of NFPA's Standards Council.

5. Fire safety professionals and the fire protection industry benefit greatly from the standards developed by NFPA through its voluntary consensus process. It is critical to have one central association that can attract contributors from a variety of perspectives, coordinate and host Technical Committee meetings, and ultimately develop and publish standards that reflect the broadest possible consensus about fire safety techniques and that can be used widely throughout the country.

6. NFPA's voluntary consensus process results in the creation of uniform industry-wide standards. Professionals across the industry rely on the existence of these standards, and this industry-wide uniformity could not be achieved without NFPA or a similar organization with the resources to devote to standards development.

7. It is especially important to have an independent association that brings together the expertise of many different stakeholders and creates an open and structured standards development process designed to accommodate input from many sources and achieve consensus. The voluntary consensus process is costly, but in my experience it results in the highest quality standards in the area of fire safety.

8. In my experience participating in NFPA's standards development process, I have observed the significant costs that NFPA incurs to develop its standards. I understand that this process is primarily funded by revenue obtained from the sale of NFPA publications.

9. NFPA also provides resources on which fire safety professionals rely in interpreting and implementing NFPA standards. These include expert technical staff who provide interpretations of the standards, training and education programs, and a research arm. These resources significantly enhance the value and utility of NFPA standards. I understand that these resources are primarily funded by revenue obtained from the sale of NFPA publications.

10. In my experience in the fire sprinkler industry, NFPA 13 and other standards used in the industry are accessible to the professionals who use them, including manufacturers, architects, engineers, and contractors. NFPA distributes standards through a variety of channels and in a variety of formats. Professionals who work with fire sprinklers are familiar with NFPA standards and able to obtain them with little difficulty and at reasonable cost.

11. Before I became a member of any NFPA Technical Committees, I submitted a committee application in which I agreed that all copyrights and other rights in the Committee's work were owned by NFPA. I also agreed that, to the extent I had any rights in my work in connection with the Committee, either individually or in connection with others, I expressly assigned all such rights to NFPA.

12. In my work on NFPA Technical Committees, it has always been my express intention that my contributions to the standards would be fully owned by NFPA, and that NFPA would own the copyright in the completed standards on which I worked.

13. In my experience working on NFPA Technical Committees, all Committee members have known that NFPA publishes the final standards, owns the copyright in those standards, and affixes copyright notices to the standards. In my experience, the Technical Committee members understand and agree that all copyrights and other rights in the work of the Technical Committee is owned by NFPA.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

Executed in Quincy, MA on November 17, 2015



James Golinveaux

**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a/ ASTM INTERNATIONAL; NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS, Plaintiffs/ Counter-Defendants, v. PUBLIC.RESOURCE.ORG, INC., Defendant/ Counter-Plaintiff.	Case No. 1:13-cv-01215-TSC
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DECLARATION OF RANDY JENNINGS

Pursuant to 28 U.S.C. § 1746, I, Randy Jennings, declare the following statements to be true under the penalties of perjury:

1. I am over the age of 18 years and am fully competent to testify to the matters stated in this Declaration.
2. This declaration is based on my personal knowledge. If called to do so, I would and could testify to the matters stated herein.
3. I am the Director of Program Operations for the Tennessee Department of Agriculture. In that role, among other responsibilities, I represent the State of Tennessee on ASTM International Committees D02, D03, D15; the National Conference on Weights and Measures and other relevant standards development organizations. I also direct and assist regulatory administrators in assessing and improving their programs; monitor the efficiency and

effectiveness of staff performance; review all enforcement actions that are submitted to the division attorney; and provide direction on enforcement options after discussing with the attorney and consulting with program administrators.

4. I am a member of ASTM International ("ASTM"). I have been a member of ASTM since 1990.

5. I am currently the Chairman of ASTM's Committee D02, which is the committee that develops standards related to petroleum products, liquid fuels and lubricants.

6. I have been an active member of several D02 subcommittees, including D01.A0 on Gasoline and Oxygenated Fuels, D02.E0 on Burner, Diesel, Non-Aviation Gas Turbine and Marine Fuels, D02.H0 on Liquefied Petroleum Gas, D02.02 on Hydrocarbon Measurement for Custody Transfer and D02.08 on Volatility for many years.

7. I understood since I joined ASTM that ASTM would own the copyright in any standards or materials I helped to develop.

8. I understood since I became a member of ASTM that ASTM sell copies of all ASTM standards and uses the revenue from its sales to support the standards development process.

9. I understood since I became a member of ASTM that if I wanted a copy of any ASTM standard, I would be required to purchase it from ASTM, including standards that I helped to develop.

10. I have renewed my membership with ASTM using ASTM's online registration system since at least 2007. As part of that process, I indicated my agreement to the following statement: "I agree, by my participation in ASTM and enjoyment of the benefits of my annual membership, to have transferred and assigned any and all interest I possess or may possess,

including copyright, in the development or creation of ASTM standards or ASTM IP to ASTM.”

A screen shot of the membership renewal form is attached as Exhibit 1. I understand this to mean that I have assigned any and all copyrights in standards I helped to develop from 1990 to the present to ASTM.

11. I am not aware of any ASTM member who claims to own the copyright in any ASTM standard.

12. The context of ASTM’s operations, including the membership forms, membership renewal forms, Intellectual Property policy, and the copyright notices on each of the ASTM standards makes it very clear to all members that ASTM owns the copyrights in all ASTM standards.

13. A task group puts together the first draft of a new standard. I have participated in several task groups that have drafted proposed standards that were then revised and voted upon by ASTM subcommittees and committees. In my experience, the task group works collaboratively, with many people, sometimes dozens of people, sharing ideas, suggesting wording and providing comments that contribute to the draft standard.

14. I have also participated in developing standards through the balloting process in subcommittees and committees. Members of the subcommittee and committee that submit ballots on a proposed standard also suggest wording and provide comments on the draft. The suggestions and comments are often incorporated into the draft.

15. I participated in the development of ASTM D975-07.

16. The ASTM standards I have participated in developing were developed based on public demands, industry needs, and public safety concerns and advancements in technology.

They address a technical issue or problem identified by a group of people in the relevant sector that can be addressed with a standard-based solution.

17. Technical committees make decisions about the appropriate content of the standards, including the relevant measurements, values, descriptions, and other specifications, as well as the language with which to express these standards.

18. Since joining ASTM, I was aware that all contributions I made to the process of developing a standard would be merged with the contributions of others and would result in a single standard.

19. The task group, subcommittee and committee structure through which ASTM standards are developed makes it apparent to all participants that their contributions will be merged with the contributions of others and will result in a single standard.

20. For each of the standards I helped to develop, ASTM staff members reviewed the draft standards and suggested editorial changes and added other information required by the Form and Style guide.

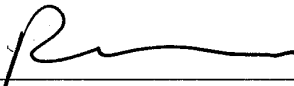
21. The Tennessee Code requires kerosene and motor oils to meet the standards set out in the most recent volume 5 of the ASTM Annual Book of Standards. *See* Tennessee Code § 47-18-1304.

22. One of the benefits of states being able to incorporate by reference the ASTM standards is that it provides different states with a common set of requirements. If each state had to create its own set of standards, there would be a patchwork of requirements, which would make it very difficult for companies to convey products that could be used in multiple states.

23. ASTM is able to convene experts with knowledge of different fuels and their components to develop its fuel standards.

24. The state of Tennessee does not have the resources or expertise to develop the broad array of standards that ASTM develops and maintains related to fuels. If Tennessee was unable to incorporate by reference the ASTM standards, it would not be able to effectively develop standards for fuel products.

Dated: November 18, 2015




Randy Jennings

EXHIBIT 1

Case 1:13-cv-01215-TSC Document 118-6 Filed 11/19/15 Page 7 of 10

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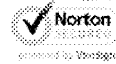
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**UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA**

<p>AMERICAN SOCIETY FOR TESTING AND MATERIALS d/b/a/ ASTM INTERNATIONAL;</p> <p>NATIONAL FIRE PROTECTION ASSOCIATION, INC.; and</p> <p>AMERICAN SOCIETY OF HEATING, REFRIGERATING, AND AIR CONDITIONING ENGINEERS,</p> <p>Plaintiffs/ Counter-Defendants,</p> <p>v.</p> <p>PUBLIC.RESOURCE.ORG, INC.,</p> <p>Defendant/ Counter-Plaintiff.</p>	<p>Case No. 1:13-cv-01215-TSC</p>
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DECLARATION OF THOMAS B. O'BRIEN, JR.

Pursuant to 28 U.S.C. § 1746, I, Thomas B. O'Brien, Jr., declare the following statements to be true under the penalties of perjury:

1. I am over the age of 18 years and am fully competent to testify to the matters stated in this Declaration.
2. This declaration is based on my personal knowledge. If called to do so, I would and could testify to the matters stated herein.
3. I am Vice President and General Counsel at ASTM International ("ASTM"). I have worked at ASTM since 2003.
4. My responsibilities include developing legal policies and procedures and addressing all legal matters for ASTM, including ASTM's copyright registrations, trademark registrations, and enforcement efforts related to ASTM's intellectual property.

5. ASTM has a copyright registration for ASTM D86-07 (Standard Test Methods for Distillation of Petroleum Products at Atmospheric Pressure) that identifies ASTM as the owner. Attached as Exhibit 1 is a true and correct copy of the certificate of registration for this standard.

6. ASTM has a copyright registration for ASTM D975-07 (Standard Specification for Diesel Fuel Oils) that identifies ASTM as the owner. Attached as Exhibit 2 is a true and correct copy of the certificate of registration for this standard.

7. ASTM publishes an Annual Book of ASTM Standards every year that is composed of a number of volumes and includes the current version of each of its standards.

8. Between 1980 and 2011, ASTM obtained copyright registrations for each volume of its Book of Standards.

9. ASTM D396-98 and ASTM D1217-93(98) were published in Volume 5.01 of the 1999 Annual Book of ASTM Standards. Attached as Exhibit 3 are true and correct copies of pages from the index of the 1999 Annual Book of ASTM Standards showing the volume in which these standards appeared.

10. ASTM has a copyright registration for Volume 5.01 of the 1999 Annual Book of ASTM Standards that identifies ASTM as the owner. The date of first publication for this work was February 22, 1999 and the effective date of registration is March 10, 1999. Attached as Exhibit 4 is a true and correct copy of the certificate of registration for the standards included in this volume.

11. The published version of each of ASTM's standards includes a copyright notice alerting the public (including the individuals who participated in the creation of the standards) to the fact that the copyright is owned by ASTM.

12. ASTM knows of no individual or other person who claims to own any copyright interest in any ASTM standard.

13. ASTM routinely grants permission to researchers, academics and others to reproduce its standards at no cost for non-commercial purposes.

14. ASTM has not licensed Defendant's use of ASTM's standards.

15. ASTM developed a guide entitled "Form and Style for ASTM Standards," which is a guide to promote uniformity of form and style in ASTM standards ("ASTM Form and Style Guide"). This guide describes certain conventions that must be followed when drafting an ASTM standard. Attached as Exhibit 5 is a true and correct copy of the ASTM Form and Style Guide.

16. The ASTM Form and Style Guide describes certain components and provides the text for certain language that must be included in every ASTM standard.

17. As part of the process of developing a draft standard, ASTM staff members add language and components that are required by the ASTM Form and Style Guide to the draft prepared by the task group.

18. For example, Standard D86-07 contains numerous components that were authored by ASTM employees. Attached as Exhibit 6 is a true and correct copy of ASTM D86-07.

19. The title of the standard (Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure) appears at the top of the first page of ASTM D86-07. Directly below the title, there is an explanation of what the designation number for the standard means. This language was drafted by an ASTM employee.

20. Footnote 1 is a standard footnote that is authored by an ASTM employee, which provides information about which committee and subcommittee have jurisdiction over the

standard. ASTM Form and Style Guide Section A26.2 lays out the requirements for the content of this footnote.

21. Footnote 2 explains how to obtain access to ASTM standards referenced in the document. This language was drafted by an ASTM employee.

22. Section 1.5 of ASTM D86-07 states: “This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.” This language comes directly from the Section F2.1 of the ASTM Form and Style Guide and was written by an ASTM employee.

23. On the last page of ASTM D86-07, there is a summary of the differences between this version of the standard and the previous version, which was compiled by ASTM employees.

24. At the very bottom of the last page of D86-07, there are three italicized paragraphs. The text of the first two paragraphs comes directly from ASTM’s Form and Style Guide, which was written by ASTM employees. *See* Form and Style Guide Sections F3.2 and F2.3.

25. The third italicized paragraph at the end of D86-07 is a statement of ASTM’s ownership of the copyright and information about how to purchase copies, which was also authored by an ASTM employee.

26. As another example, ASTM standard D975-07 contains numerous sections that were authored by ASTM employees. Attached as Exhibit 7 is a true and correct copy of ASTM D975-07.

27. Underneath the title of the standard (Standard Specification for Diesel Fuel Oils), there is an explanation of what the designation number for the standard means. This language was drafted by an ASTM employee.

28. Footnote 1 of ASTM D975-07 provides information about the committee and subcommittee that have jurisdiction over this standard. This language is required by Section B28.2 of the ASTM Form and Style Guide and was drafted by an ASTM employee.

29. Section 1.3 of ASTM D975-07 states “The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.” This language was taken verbatim from Section H3.1.1.1 of the ASTM Form and Style Guide.

30. Like ASTM D86-07, the last page of ASTM D975-07 provides a summary of changes made to the previous version of this standard and includes three italicized paragraphs, all of which were drafted by ASTM employees.

31. ASTM D396-98 also contains content that was drafted by ASTM employees. Attached as Exhibit 8 is a true and correct copy of ASTM D396-98.

32. Underneath the title of the standard (Standard Specification for Fuel Oils), there is an explanation of what the designation number for the standard means. This language was drafted by an ASTM employee.

33. Footnote 1 of ASTM D396-98 provides information about the committee and subcommittee that have jurisdiction over this standard. This language is required by Section B28.2 of the ASTM Form and Style Guide and was drafted by an ASTM employee.

34. On the last page of ASTM D396-98 there are two italicized paragraphs that were drafted by ASTM employees.

35. ASTM D1217-93(98) contains content that was drafted by ASTM employees.

Attached as Exhibit 9 is a true and correct copy of ASTM D1217-93(98).

36. Underneath the title of the standard (Standard Test Method for Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer), there is an explanation of what the designation number for the standard means. This language was drafted by an ASTM employee.

37. Footnote 1 of ASTM D1217-93(98) provides information about the committee and subcommittee that have jurisdiction over this standard. This language is required by Section B28.2 of the ASTM Form and Style Guide and was drafted by an ASTM employee.

38. Section 1.5 of ASTM D1217-93(98) states: "This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use." This language comes directly from the Section F2.1 of the ASTM Form and Style Guide and was written by an ASTM employee.

39. On the last page of ASTM D1217-93(98) there are two italicized paragraphs that were drafted by ASTM employees.

40. There are a number of ways in which ASTM members assign their copyrights in the standards they help to develop to ASTM.

41. Since 2005, new members and members renewing their memberships online to ASTM agree to the following language: "I agree, by my participation in ASTM and enjoyment of the benefits of my annual membership, to have transferred and assigned any and all interest I possess or may possess, including copyright, in the development or creation of ASTM standards or ASTM IP to ASTM." Attached as Exhibit 10 is a true and correct copy of the online new

membership form and attached as Exhibit 11 is a true and correct copy of the online membership renewal form.

42. Some members of ASTM renew their memberships using paper forms that contain substantially the same language as the language in the online forms. Attached as Exhibit 12 is a true and correct copy of a paper membership renewal form.

43. Michael Collier was the technical contact for the revision of ASTM D86 that was completed in 2007.

44. Michael Collier renewed his ASTM membership every year between 2007-2014 using the online membership renewal form.

45. John Chandler was the technical contact for the revision of ASTM D975 that was completed in 2007 and for the revision of ASTM D398 that was completed in 1998.

46. John Chandler renewed his ASTM membership every year between every year between 2007-2014 using the online membership renewal form.

47. Jimmy King was the technical contact for the 1998 reapproval of ASTM D1217.

48. Jimmy King renewed his ASTM membership in 2007.

49. When an individual registers a “work item,” which starts the process of developing a new standard or amending an existing standard, that individual must agree to the following language: “I hereby grant and assign to ASTM International all and full intellectual property rights, including copyright, in the proposed draft standard/text and any contributions I make to ASTM International in connection with this proposal” and “By submitting this form, I acknowledge that all copyrights to this document, as a draft and an approved ASTM standard, are the sole and exclusive property of ASTM, in accordance with the Intellectual Property

policies of the Society.” Attached as Exhibit 13 is a true and correct copy of the online form an individual must complete to register a work item.

50. ASTM engages in quality control procedures to ensure the quality and integrity of the content of the standards.

51. ASTM staff editors edit the language of the standard to ensure that it conforms to the requirements in the Form and Style Guide.

52. ASTM staff also submits the final version to the technical committee for reviews to make sure it matches the content approved through the balloting process.

53. ASTM staff proofreads the XML versions of standards before posting them on the internet to ensure that the conversion of the text and diagrams into XML format has not altered the content of the standard.

54. ASTM has not received any complaints about lack of accessibility of its standards other than from Defendant.

55. ASTM owns a U.S. federal trademark registration for the trademark ASTM (U.S. Trademark Reg. No. 2,679,320) in connection with books featuring information on standardization of specifications and the methods of testing for various materials and products; promoting public awareness of the need for standards; educational services; and providing a website on global computer networks featuring information in the field of specifications and methods of testing for various materials and products. ASTM has used this trademark since 1962. ASTM filed a Section 15 declaration in support of the incontestability of this registration. Attached as Exhibit 14 are true and correct copies of the Certificate of Registration and the Section 15 declaration.

56. ASTM owns U.S. federal trademark registrations for the trademarks ASTM INTERNATIONAL (U.S. Trademark Reg. No. 2,685,857) and the following logo:



(U.S. Reg. No. 2,651,796) in connection with similar goods and services. ASTM has used these trademarks since 2001. ASTM filed Section 15 declarations in support of the incontestability of these registrations. Attached as Exhibit 15 are true and correct copies of the Certificates of Registration and the Section 15 declarations.

57. ASTM also owns a registration for the following logo:



(U.S. Reg. Nos. 4,079,772) in connection with publications relating to testing methods, specifications and standards in engineering, industrial and allied fields. ASTM has used this trademark since 1965. The application for this registration was filed on May 10, 2011. The Examining Attorney who reviewed the application approved it for registration without requesting proof of secondary meaning. Attached as Exhibit 16 is a true and correct copy of the Certificate of Registration.

58. ASTM expends considerable resources marketing and promoting its goods and services in connection with these trademarks every year. For example, ASTM spent over \$3 million marketing and promoting the sales of copies of its standards that feature its trademarks in catalogs, brochures, and in mail and email correspondence between 2010-2012, which were the three years immediately prior to Defendant's infringement.

59. ASTM's longstanding use of its trademarks in connection with its high quality standards has resulted in the public's association of ASTM's marks with a certain quality.

60. ASTM provides the public with free, read-only access to all ASTM standards that ASTM is aware have been incorporated by reference into federal regulations.

61. ASTM provides the public with free, read-only access to all ASTM standards that are the subject of Plaintiffs' Motion for Summary Judgment. Attached as Exhibit 17 are true and correct copies of screen shots demonstrating the availability of ASTM standards on ASTM's online Reading Room.

62. ASTM identifies standards that have been incorporated by reference into federal regulations from the database created by the National Institute of Standards and Technology.

63. ASTM publicizes the free read-only access provided on its website.

64. During the notice and comment period regarding proposed federal regulations, upon request by the relevant federal agency, ASTM provides free, read-only access to standards that are incorporated by reference in proposed regulations.

65. ASTM has not received any complaints about lack of accessibility of its standards other than from Defendant.

66. Defendant submitted comments reflecting his beliefs in connection with proposed rulemaking regarding the procedures of the Office of the Federal Register and the National

Archives and Records Administration, proposed amendments to the Office of Management and Budget's Circular A-119, and a study by the Administrative Conference of the United States.

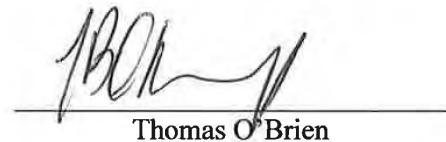
67. During the course of this litigation, Defendant has continued to post versions of additional standards owned by ASTM that use ASTM's trademarks on its website, including as recently as October 2015.

68. Defendant has posted html versions of certain ASTM standards since Plaintiffs filed their Complaint that do not use the ASTM logo marks. Attached as Exhibit 18 is a true and correct copy of a version of ASTM F977 that Defendant posted on its website in October 2015 that does not use an ASTM logo.

69. On or about November 10, 2015, Defendant removed its versions of the standards at issue in this case from its website and from the Internet Archive at the suggestion of the Court.

70. Since the standards were taken down from Defendant's website and the Internet Archive, ASTM has not received any complaints from persons regarding any alleged inability to access ASTM's standards that have been incorporated by reference.

Dated: November 11, 2015



Thomas O'Brien

EXHIBIT 1

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 13 of 267
Certificate of Registration

This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

Maria A. Pallante

Register of Copyrights, United States of America

Registration Number
TX 7-685-941

Effective date of
registration:
March 5, 2013

Title

Title of Work: ASTM D86-07 Standards Test Methods for Distillation of Petroleum Products at Atmospheric Pressure

Completion/Publication

Year of Completion: 2007

Date of 1st Publication: March 1, 2007

Nation of 1st Publication: United States

Author

■ **Author:** ASTM International

Author Created: Entire Text

Work made for hire: Yes

Domiciled in: United States

Copyright claimant

Copyright Claimant: ASTM International

100 Barr Harbor Drive, West Conshohocken, PA, 19428, United States

Limitation of copyright claim

Material excluded from this claim: text

Previous registration and year: TX 6-563-072 2007

TX 6-342-584 2006

New material included in claim: text, editing

Rights and Permissions

Organization Name: ASTM International

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Email: khooper@astm.org

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Certification

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 14 of 267

Name: Kathleen Hooper

Date: March 1, 2013



Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 15 of 267

EXHIBIT 2

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 16 of 267
Certificate of Registration

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Maria A. Pallante

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Registration Number
TX 7-685-915

Effective date of
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Title

Title of Work: ASTM D975-07 Standards Specification for Diesel Fuel Oils

Completion/Publication

Year of Completion: 2007

Date of 1st Publication: April 1, 2007

Nation of 1st Publication: United States

Author

■ Author: ASTM International

Author Created: Entire Text

Work made for hire: Yes

Domiciled in: United States

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Certification

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 17 of 267

Name: Kathleen Hooper

Date: March 1, 2013



Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 18 of 267

EXHIBIT 3



Alphanumeric List

ASTM Standards

Standards:

Specifications	2911
Test Methods	7403
Terminology	186
<i>Total</i>	10,500

Each ASTM standard has a unique serial designation. It is comprised of a capital letter indicating general classification (A, ferrous metals; B, nonferrous metals; C, cementitious, ceramic, concrete, and masonry materials; D, miscellaneous materials; E, miscellaneous subjects; F, materials for specific applications; G, corrosion, deterioration, and degradation of materials; ES, emergency standards; P, proposals; PS, provisional standards), a serial number (one to four digits), a dash, and the year of issue.

In each serial designation, the number following the dash indicates the year of original adoption as standard or, in the case of revision, the year of last revision. Thus, standards adopted or revised during the year 1999 have as their final number, 99. A letter following this number indicates more than one revision during that year, that is 99a indicates the second revision in 1999, 99b the third revision, etc. Standards that have been reapproved without change are indicated by the year of last reapproval in parentheses as part of the designation number, for example, (1999). A superscript epsilon indicates an editorial change since the last revision or reapproval; $\epsilon 1$ for the first change, $\epsilon 2$ for the second, etc.

If a standard is written in acceptable metric units and has a companion standard written in inch-pound units (or other units), the metric standard is identified by a letter M after the serial number; this standard contains "hard metric" units.

If a standard is written in inch-pound units (or other units) and acceptable metric units, the document is identified by a dual alphanumeric designation.

When reference is made to a standard, the *complete* designation should be given. Best practice is to state the *designation and title*.

The boldface number(s) following the title refer to the volume(s) of the *Annual Book of ASTM Standards* in which the standard appears.

This list includes only those standards which appear in the 1999 edition of each volume of the *Annual Book of ASTM Standards*. New and revised standards that were approved after the closing date for the volume are available as separate reprints and will be listed in next year's edition.

Each ASTM standard is available as a separate reprint from ASTM. Price and order information are available from ASTM Customer Service, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, 610-832-9585.

D 308

D 413

- D 308 Discontinued 1940; Method of Test for Oil Content of Petroleum Waxes; Replaced by D 721
- D 309 Discontinued 1943; Specification for Crushed Stone, Crushed Slag, and Gravel for Bituminous Concrete Base and Surface Courses of Pavements; Replaced by D 692
- D 310 Discontinued 1988; Test Method for Size of Anthracite; Replaced by D 4749
- D 311 Discontinued 1988; Method for Sieve Analysis of Crushed Bituminous Coal; Replaced by D 4749
- D 312-95a Specification for Asphalt Used in Roofing, 04.04
- D 313 Discontinued 1982; Method of Test for Coarse Particles in Mixtures of Asphalt and Mineral Matter
- D 314 Discontinued 1970; Method of Test for Hardness of Rubber; Replaced by D 1415
- D 315-95 Specification for Woven Asbestos Tape, 04.05
- D 316 Discontinued 1938; Methods of Test for Chafer Tire Fabrics Other Than Cord Fabrics
- D 317 Discontinued 1956; Specification for Oil Putty for Glazing
- D 318 Discontinued 1976; Specification for Amyl Acetate (Synthetic) (85 to 88% grade)
- D 319-95 Specification for Amyl Alcohol (Synthetic), 06.04
- D 320 Discontinued 1953; Specification for Butyl Propionate (90 to 93% grade)
- D 321 Discontinued 1953; Specification for Ethyl Lactate (Synthetic)
- D 322-97 Test Method for Gasoline Diluent in Used Gasoline Engine Oils by Distillation, 05.01
- D 323-94 Test Method for Vapor Pressure of Petroleum Products (Reid Method), 05.01
- D 324 Discontinued 1964; Definitions of Terms Relating to Timber Preservatives
- D 325 Discontinued 1945; Method of Test for Comparing Thermal Conductivities of Solid Electrical Insulating Materials
- D 326 Discontinued 1935; Method of Compression Testing of Natural Building Stone
- D 327 Redesignated C 99
- D 328 Redesignated C 97
- D 329-95 Specification for Acetone, 06.04
- D 330-93(1997) Specification for 2-Butoxyethanol, 06.04
- D 331-95 Specification for 2-Ethoxyethanol, 06.04
- D 332-87(1997)*1 Test Method for Relative Tinting Strength of White Pigments by Visual Observation, 06.01
- D 333-96 Test Methods for Clear and Pigmented Lacquers, 06.02
- D 334 Discontinued 1967; Methods of Test for Cotton Goods for Rubber and Pyroxylin Coating
- D 335 Discontinued 1989; Specification for Cotton Tapes Woven for Electrical Purposes
- D 336 Discontinued 1938; Methods of Test for Tire Fabrics Other Than Cord Fabrics
- D 337 Redesignated E 337
- D 338 Discontinued 1935; Method of Test for Modulus of Elasticity of Natural Building Stone
- D 339 Discontinued 1935; Method of Shear Testing of Natural Building Stone
- D 340 Discontinued 1935; Definitions of Terms Relating to Natural Building Stone
- D 341-93(1998) Viscosity-Temperature Charts for Liquid Petroleum Products, 05.01
- D 342 Discontinued 1936; Specification for Acetate Ester of Ethylene Glycol Monoethyl Ether (90 to 91% Grade)
- D 343 Discontinued 1982; Specification for 2-Ethoxyethyl Acetate (95% Grade)
- D 344-97 Test Method for Relative Hiding Power of Paints by the Visual Evaluation of Brushouts, 06.01
- D 345-97 Test Method for Sampling and Testing Calcium Chloride for Roads and Structural Applications, 04.03
- D 346-90(1998) Practice for Collection and Preparation of Coke Samples for Laboratory Analysis, 05.05
- D 347-97 Tables for Volume and Specific Gravity Correction for Creosote, Creosote-Coal Tar Solutions, and Coal Tar, 04.10
- D 348-95 Test Methods for Rigid Tubes Used for Electrical Insulation, 10.01
- D 349-92(1997) Test Methods for Laminated Round Rods Used for Electrical Insulation, 10.01
- D 350-96 Test Methods for Flexible Treated Sleeving Used for Electrical Insulation, 10.01
- D 351-97 Classification for Natural Muscovite Block Mica and Thins Based on Visual Quality, 10.01
- D 352-97 Test Methods for Pasted Mica Used in Electrical Insulation, 10.01
- D 353 Discontinued 1995; Specification for Natural Rubber Insulation for Wire and Cable, 60°C Operation
- D 354 Discontinued 1967; Methods of Testing Tolerances for Tubular Sleeving and Braids
- D 355 Discontinued 1936; Method of Sampling Natural Building Stone and Sample for Testing
- D 356 Discontinued 1935; Method of Tension Testing of Natural Building Stone and Sample for Testing
- D 357 Discontinued 1970; Method of Test for Knock Characteristics of Motor Fuels Below 100 Octane Number by the Motor Method; Replaced by D 2700
- D 358-98 Specification for Wood to Be Used as Panels in Weathering Tests of Coatings, 06.02
- D 359 Discontinued 1940; Specification for Shellac Varnish; Replaced by D 360
- D 360-89(1996)*1 Specification for Shellac Varnishes, 06.03
- D 361 Discontinued 1968; Specification for Industrial 90 Benzene
- D 362 Discontinued 1991; Specification for Industrial Grade Toluene
- D 363-90(1995) Specification for Tricresyl Phosphate, 06.04
- D 364 Discontinued 1982; Specification for Industrial Grade Xylene
- D 365-84(1996)*1 Test Methods for Soluble Nitrocellulose Base Solutions, 06.02
- D 366 Discontinued 1938; Specification for Concrete for Pavements
- D 367-94 Test Method for Xylene-Insoluble Matter in Creosote, 04.10
- D 368-89(1995)*1 Test Method for Specific Gravity of Creosote and Oil-Type Preservatives, 04.10
- D 369-84(1995)*1 Test Method for Specific Gravity of Creosote Fractions and Residues, 04.10
- D 370-84(1995)*1 Test Method for Dehydration of Oil-Type Preservatives, 04.10
- D 371-89(1996) Specification for Asphalt Roll Roofing (Organic Felt) Surfaced with Mineral Granules; Wide Selvage, 04.04
- D 372-90(1995)*1 Specification for Flexible Treated Sleeving Used for Electrical Insulation, 10.01
- D 373 Discontinued 1994; Specification for Black and Yellow Straight-Cut and Bias-Cut Varnished Cotton Cloth and Tape for Electrical Insulation
- D 374-94 Test Methods for Thickness of Solid Electrical Insulation, 10.01
- D 374M-94 Test Methods for Thickness of Solid Electrical Insulation [Metric], 10.01
- D 375-95 Specification for Asbestos Roving, 04.05
- D 376 Discontinued 1976; Methods of Test for Holland Cloth
- D 377 Discontinued 1976; Methods of Test for Small Amounts of Copper and Manganese in Textiles
- D 378-91 Test Methods for Rubber Belting, Flat Type, 09.02
- D 379 Discontinued 1938; Methods of Test for rubber hose; Replaced by D 380
- D 380-94 Methods of Testing Rubber Hose, 09.02
- D 381-84*1 Test Method for Existent Gum in Fuels by Jet Evaporation, 05.01
- D 382 Discontinued 1940; Specification for Titanium Barium Pigment; Replaced by D 476
- D 383 Discontinued 1940; Specification for Titanium Calcium Pigment; Replaced by D 476
- D 384 Discontinued 1939; Specification for Titanium Dioxide; Replaced by D 476
- D 385 Discontinued 1940; Specification for Zinc Sulfate Pigment; Replaced by D 477
- D 386 Discontinued 1940; Specification for Zinc Oxide; Replaced by D 477
- D 387-86(1994) Test Method for Color and Strength of Color Pigments with a Mechanical Muller, 05.01
- D 388-98a Classification of Coals by Rank, 05.05
- D 389 Discontinued 1963; Specification for Classification of Coals by Grade
- D 390-92 Specification for Coal-Tar Creosote for the Preservative Treatment of Piles, Poles, and Timbers of Marine, Land, and Fresh Water Use, 04.10
- D 391-94 Specification for Creosote-Coal Tar Solution, 04.10
- D 392 Discontinued 1963; Methods of Testing Molding Powders Used in Manufacturing Molded Electrical Insulators
- D 393 Discontinued 1938; Specification for Insulated Wire and Cable: Class A, 30% Heavy Rubber Compound
- D 394 Discontinued 1970; Method of Test for Abrasion Resistance of Rubber Compounds
- D 395-98 Test Methods for Rubber Property—Compression Set, 09.01
- D 396-98 Specification for Fuel Oils, 05.01
- D 397 Discontinued 1951; Specification for Emulsified Asphalt; Replaced by D 977
- D 398 Discontinued 1950; Specification for Emulsified Asphalt; Replaced by D 977
- D 399 Discontinued 1950; Specification for Emulsified Asphalt; Replaced by D 977
- D 400 Discontinued 1937; Specification for Emulsified Asphalt (Heavy Premix-Winter Grade)
- D 401 Discontinued 1949; Specification for Emulsified Asphalt; Replaced by D 977
- D 402-97 Test Method for Distillation of Cut-Back Asphaltic (Bituminous) Products, 04.03
- D 403 Discontinued 1953; Methods of Testing and Tolerances for Yarns Containing Wool; Replaced by D 1285
- D 404 Discontinued 1953; Methods of Testing and Tolerances for Yarns Containing Wool; Replaced by D 1285
- D 405 Discontinued 1982; Specification for Blue Lead; Basic Sulfate
- D 406 Discontinued 1961; Method of Test for Relative Dry Hiding Power of White Pigments in Linseed Oil Vehicle
- D 407 Discontinued 1977; Definitions of Terms Relating to Gross Calorific Value and Net Calorific Value of Solid and Liquid Fuels; Replaced by D 121
- D 408 Discontinued 1951; Method of Test for Grindability of Coal by the Ball-Mill Method
- D 409-97 Test Method for Grindability of Coal by the Hardgrove-Machine Method, 05.05
- D 410 Discontinued 1988; Method for Sieve Analysis of Coal
- D 411-98 Test Methods for Shellac Used for Electrical Insulation, 10.01
- D 412-98a Test Methods for Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers—Tension, 09.01
- D 413-98 Test Methods for Rubber Property—Adhesion to Flexible Substrate, 09.01

D 1146

D 1244

- D 1146-88(1994)*¹ Test Method for Blocking Point of Potentially Adhesive Layers, 15.06
- D 1147 Redesignated F 36
- D 1148-95 Test Method for Rubber Deterioration—Heat and Ultraviolet Light Discoloration of Light-Colored Surfaces, 09.01
- D 1149-91(1997) Test Method for Rubber Deterioration—Surface Ozone Cracking in a Chamber, 09.01
- D 1150 Discontinued 1992; Single and Multi-Panel Forms for Recording Results of Exposure Tests of Paints
- D 1151-90(1995) Test Method for Effect of Moisture and Temperature on Adhesive Bonds, 15.06
- D 1152-97 Specification for Methanol (Methyl Alcohol), 06.04
- D 1153-94(1997) Specification for Methyl Isobutyl Ketone, 06.04
- D 1154 Discontinued 1957; Method of Test for Purity of Acetone and Methyl Ethyl Ketone
- D 1155-89(1994)*¹ Test Method for Roundness of Glass Spheres, 06.02
- D 1156 Discontinued 1984; Method of Test for Total Chlorine in Poly(Vinyl Chloride) Polymers and Copolymers Used for Surface Coatings
- D 1157-91(1996) Test Method for Total Inhibitor Content (TIC) of Light Hydrocarbons, 05.01
- D 1158 Discontinued 1984; Method of Test for Bromine Number of Petroleum Distillates by Color-Indicator Titration; Replaced by D 1159
- D 1159-98 Test Method for Bromine Number of Petroleum Distillates and Commercial Aliphatic Olefins by Electrometric Titration, 05.01
- D 1160-95 Test Method for Distillation of Petroleum Products at Reduced Pressure, 05.01
- D 1161 Discontinued 1981; Method of Test for Total Chloride Content of Paper and Paper Products
- D 1162 Discontinued 1974; Method of Test for Water-Soluble Matter in Paper
- D 1163 Discontinued 1986; Method of Test for Lint of Paper Towels
- D 1164 Discontinued 1985; Test Method for Ring Crush of Paperboard; Replaced by TAPPI T 818
- D 1165-80(1994)*¹ Nomenclature of Domestic Hardwoods and Softwoods, 04.10
- D 1166-84(1995)*¹ Test Method for Methoxyl Groups in Wood and Related Materials, 04.10
- D 1167 Discontinued 1972; Methods of Testing Asphalt-Base Emulsions for Use As Protective Coatings for Built-Up Roofs; Replaced by D 2939
- D 1168-95 Test Methods for Hydrocarbon Waxes Used for Electrical Insulation, 10.01
- D 1169-95 Test Method for Specific Resistance (Resistivity) of Electrical Insulating Liquids, 10.03
- D 1170 Discontinued 1968; Specification for Nonmetallic Gasket Materials for General Automotive and Aeronautical Purposes; Combined with F 104
- D 1171-94 Test Method for Rubber Deterioration—Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens), 09.01
- D 1172-95 Test Method for pH of Aqueous Solutions of Soaps and Detergents, 15.04
- D 1173-53(1997) Test Method for Foaming Properties of Surface-Active Agents, 15.04
- D 1174 Discontinued 1983; Method of Test for Effect of Bacterial Contamination on Permanence of Adhesive Preparations and Adhesives Bonds
- D 1175 Discontinued 1982; Method of Test for Abrasion Resistance of Textile Fabrics (Oscillatory Cylinder and Uniform Abrasion); Replaced by D 4157, D 4158
- D 1176-98 Test Method for Sampling and Preparing Aqueous Solutions of Engine Coolants or Antirusts for Testing Purposes, 15.05
- D 1177-94(1998) Test Method for Freezing Point of Aqueous Engine Coolants, 15.05
- D 1178 Discontinued 1971; Method of Test for Chloroform-Extractable Matter in Industrial Water and Industrial Waste Water
- D 1179-93 Test Methods for Fluoride Ion in Water, 11.01
- D 1180 Discontinued 1980; Method of Test for Warpage of Sheet Plastics
- D 1181 Discontinued
- D 1182 Discontinued 1962; Method of Test for Apparent Density and Bulk Factor of Granular Thermoplastic Molding Powder
- D 1183-96*¹ Test Methods for Resistance of Adhesive to Cyclic Laboratory Aging Conditions, 15.06
- D 1184-98 Test Methods for Flexural Strength of Adhesive Bonded Laminated Assemblies, 15.06
- D 1185-98a Test Methods for Pallets and Related Structures Employed in Materials Handling and Shipping, 15.09
- D 1186-93 Test Methods for Nondestructive Measurement of Dry Film Thickness of Nonmagnetic Coatings Applied to a Ferrous Base, 06.01
- D 1187-97 Specification for Asphalt-Base Emulsions for Use as Protective Coatings for Metal, 04.04
- D 1188-96 Test Method for Bulk Specific Gravity and Density of Compacted Bituminous Mixtures Using Paraffin-Coated Specimens, 04.03
- D 1189 Discontinued 1980; Method of Test for Vacuum Distillation of Liquid and Semi-Solid Asphaltic Materials to Obtain a Residue of Specified Penetration
- D 1190-97 Specification for Concrete Joint Sealer, Hot-Poured Elastic Type, 04.03
- D 1191 Discontinued 1996; Test Methods for Concrete Joint Sealers; Replaced by D 5329
- D 1192-98 Specification for Equipment for Sampling Water and Steam in Closed Conduits, 11.01
- D 1193-99 Specification for Reagent Water, 11.01
- D 1194-94 Test Method for Bearing Capacity of Soil for Static Load and Spread Footings, 04.08
- D 1195-93(1997) Test Method for Repetitive Static Plate Load Tests of Soils and Flexible Pavement Components, for Use in Evaluation and Design of Airport and Highway Pavements, 04.08
- D 1196-93(1997) Test Methods for Nonrepetitive Static Plate Load Tests of Soils and Flexible Pavement Components, for Use in Evaluation and Design of Airport and Highway Pavements, 04.08
- D 1197 Redesignated E 197
- D 1198-93(1998) Test Method for Solvent Tolerance of Amine Resins, 06.03
- D 1199-86(1991)*¹ Specification for Calcium Carbonate Pigments, 06.03
- D 1200-94 Test Method for Viscosity by Ford Viscosity Cup, 06.01
- D 1201-81(1992) Specification for Thermosetting Polyester Molding Compounds, 08.01
- D 1202 Discontinued 1991; Specification for Plasticized Cellulose Acetate Sheet and Film for Primary Insulation
- D 1203-94 Test Methods for Volatile Loss from Plastics Using Activated Carbon Methods, 08.01
- D 1204-94 Test Method for Linear Dimensional Changes of Nonrigid Thermoplastic Sheet or Film at Elevated Temperature, 08.01
- D 1205 Discontinued 1974; Methods of Testing Adhesives for Brake Lining and Other Friction Materials
- D 1206 Discontinued 1981; Method of Test for Resistance to Aging of Vulcanized Rubber by Measurement of Creep
- D 1207 Discontinued 1972; Recommended Practice for Classifying Elastomeric Compounds for Resilient Automotive Mountings
- D 1208-96 Test Methods for Common Properties of Certain Pigments, 06.03
- D 1209-97 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale), 06.04
- D 1210-96 Test Method for Fineness of Dispersion of Pigment-Vehicle Systems by Hegman-Type Gage, 06.01
- D 1211-97 Test Method for Temperature-Change Resistance of Clear Nitrocellulose Lacquer Films Applied to Wood, 06.02
- D 1212-91(1996)*¹ Test Methods for Measurement of Wet Film Thickness of Organic Coatings, 06.01
- D 1213 Discontinued 1985; Method of Test for Crushing Resistance of Glass Spheres
- D 1214-89(1994)*¹ Test Method for Sieve Analysis of Glass Spheres, 06.02
- D 1215 Discontinued 1980; Specification for Farm Tractor Fuels
- D 1216 Discontinued 1976; Method of Analysis of Calcium and Barium Petroleum Sulfonates
- D 1217-93(1998) Test Method for Density and Relative Density (Specific Gravity) of Liquids by Bingham Pycnometer, 05.01
- D 1219 Discontinued 1976; Method of Test for Mercaptan Sulfur in Aviation Turbine Fuels (Color-Indicator Method); Replaced by D 3227
- D 1220 Discontinued 1996; Practice for Measurement and Calibration of Upright Cylindrical Tanks
- D 1221 Discontinued 1975; Method of Test for Pinholes in Glassine and Other Greaseproof Papers
- D 1222 Discontinued 1962; Method of Test for Contrast Glass of Paper at 57.5 Deg
- D 1223-93(1998) Test Method for Specular Gloss of Paper and Paperboard at 75°, 15.09
- D 1224-92(1996) Test Methods for Zinc and Cadmium in Paper, 15.09
- D 1225 Discontinued 1985; Test Method for Flat Crush of Corrugated Paperboard; Replaced by TAPPI 808
- D 1226 Discontinued 1983; Specification for Asphalt Insulating Siding Surfaced with Mineral Granules
- D 1227-95 Specification for Emulsified Asphalt Used as a Protective Coating for Roofing, 04.04
- D 1228 Discontinued 1983; Methods of Testing Asphalt Insulating Siding Surfaced with Mineral Granules
- D 1229-87(1997)*¹ Test Method for Rubber Property—Compression Set at Low Temperatures, 09.01
- D 1230-94 Test Method for Flammability of Apparel Textiles, 07.01
- D 1231 Discontinued 1962; Method of Test for Dimensional Change of Knit Cotton Fabrics
- D 1232 Discontinued 1962; Method of Test for Dimensional Change of Knit Rayon Fabrics
- D 1233-88(1993)*¹ Specification for Twine Made for Bast and Leaf Fibers, 07.01
- D 1234-85(1995) Method for Sampling and Testing Staple Length of Grease Wool, 07.01
- D 1235 Discontinued 1963; Tolerances for Filament Acetate Yarns; Replaced by D 2497
- D 1236 Discontinued 1963; Tolerances for Filament Nylon Yarns; Replaced by D 2497
- D 1237 Discontinued 1963; Tolerances for Filament Rayon Yarns; Replaced by D 2497
- D 1238-98 Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer, 08.01
- D 1239-98 Test Method for Resistance of Plastic Films to Extraction by Chemicals, 08.01
- D 1240-96 Test Method for Rosin Acids Content of Naval Stores, Including Rosin, 06.03
- D 1241-68(1994)*¹ Specification for Materials for Soil-Aggregate Subbase, Base, and Surface Courses, 04.08
- D 1242-95a Test Methods for Resistance of Plastic Materials to Abrasion, 08.01
- D 1243-95 Test Method for Dilute Solution Viscosity of Vinyl Chloride Polymers, 08.01
- D 1244-98 Practice for Designation of Yarn Construction, 07.01

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 22 of 267

EXHIBIT 4

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 23 of 267

CERTIFICATE OF REGISTRATION



This Certificate issued under the seal of the Copyright Office in accordance with title 17, United States Code, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

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2

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Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 24 of 267

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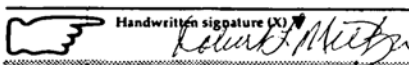
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JA00385

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 25 of 267

EXHIBIT 5

Form and Style for ASTM Standards



January 2015

JA00387

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 27 of 267

FORM AND STYLE FOR ASTM STANDARDS

Form of ASTM Test Methods

Form of ASTM Specifications

Form of Other Types of ASTM Standards

Use of the Modified Decimal Numbering System

Terminology in ASTM Standards

Caveats and Other Legal Aspects in Standards—Special Instructions

Standards Style Manual

Use of SI Units in ASTM Standards

Annex A



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Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 28 of 267

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JA00389

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 29 of 267

CONTENTS

	Page
Preface	v
Introduction	vi
Definitions	vii
Part A. Form of ASTM Test Methods.....	A-1
Part B. Form of ASTM Specifications	B-1
Part C. Form of Other Types of ASTM Standards	C-1
Part D. Use of the Modified Decimal Numbering System.....	D-1
Part E. Terminology in ASTM Standards	E-1
Part F. Caveats and Other Legal Aspects in Standards—Special Instructions	F-1
Part G. Standards Style Manual.....	G-1
Part H. Use of SI Units in ASTM Standards.....	H-1
Annex A. SI QUICK REFERENCE GUIDE	Annex A-1
Summary of Changes	Changes-1
Index.....	Index-1

PREFACE

ASTM International (hereafter referred to as ASTM International or ASTM), founded in 1898, is a scientific and technical organization formed for “the development of standards on characteristics and performance of materials, products, systems, and services; and the promotion of related knowledge.” It is the world’s largest source of voluntary consensus standards.

The purpose of this manual is to promote uniformity of form and style in ASTM standards. Such uniformity is desirable because it helps the user to find what is needed more easily and to understand what is read more quickly. Such uniformity in a manuscript is necessary if it is to be published by ASTM International. Deviations from ASTM style may mean wasted time on the part of authors, reviewers, editors, and eventually the reader of the standard. This means costly time and resources are lost by everyone involved.

Section 10.7 of the [*Regulations Governing ASTM Technical Committees*](#) requires that the current edition of this manual be followed in the writing of standards. When conditions preclude compliance with this manual, a committee may request an exemption from the Committee on Standards (COS).

Responsibility for the *Form and Style for ASTM Standards* is vested in the Board of Directors. Revisions to this manual may be recommended by the Board of Directors, by the Committee on Standards, or by a technical committee or its Executive Subcommittee. The Committee on Standards acts upon recommendations for changes and reviews all requests from technical committees for exceptions to the *Form and Style for ASTM Standards*. Recommended changes to this manual in *technical* substance and format shall be referred to the Committee on Standards, which, at a regular meeting, shall rule on the merits of the recommendation. A circular letter ballot will be issued to the technical committees and the responses will be addressed by COS. The COS recommendation shall be sent to the Board of Directors. Changes adopted by the Board of Directors shall be announced to the members and shall become effective on the date determined by the Board of Directors.

Suggestions for *editorial* revision of this manual should be addressed to the Staff Coordinator—Form and Style Manual, ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959.

INTRODUCTION

This manual is the basic textbook for anyone writing an ASTM standard. A study of Parts A, B, C, or E will show the proper form for the principal types of standards including a detailed explanation of how to write each section, from the title to the appendixes. Within Parts A, B, C, and E, the first section lists the preferred sequence of headings and indicates whether these sections are mandatory. The headings identified as “mandatory” are required. Other headings shall be included when the subject matter is pertinent to the document under development, in which case, all instructions and guidance for that particular section shall be followed. For example, if the standard does not contain reference to any standard documents within the text, it is not required to include a section on Referenced Documents. If, however, specific hazards are cited throughout the text, then the section on Hazards shall be followed. Included at appropriate places are examples and standard wording. Also included are examples of correctly written complete manuscripts of various types of standards. Where standards are referenced throughout the text of this manual, visit the ASTM website, www.astm.org, and refer to the standard’s Document Summary page.

For easy reference purposes, each paragraph in an ASTM standard shall be numbered. The modified decimal numbering system adopted is explained in Part D. Part E gives instructions for preparing standard definitions and a format for specialized terminology standards. Special instruction concerning patents, use of trademarks, open-end agreements, fire standards, and other legal issues are given in Part F.

Part G is a detailed Style Manual that includes among other things information on abbreviations, spellings, literature references, and preparation of illustrations.

ASTM policy is that SI units be included in all standards. Part H is included to aid the standards writer to incorporate these units correctly. It is the technical committee’s decision whether SI or other units are the preferred unit of measurement used in the committee’s document. When SI and non-SI units of measurement are contained in a document, the order in which they appear is determined by that committee.

For additional information about ASTM procedures, or available publications such as the [*Regulations Governing ASTM Technical Committees*](#) and [*Officer Handbook*](#), contact ASTM Technical Committee Operations, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959 (Telephone: 610-832-9673).

DEFINITION

The following definitions apply to the use of the content of this manual and clarify which sections or formats, or both, are mandatory when presenting ASTM documents:

1. “Shall” is used to indicate that a provision is mandatory.
2. “Should” is used to indicate that a provision is not mandatory but is recommended as good practice.
3. “May” is used to indicate that a provision is optional.
4. “Will” is used to express futurity, but never to indicate any degree of requirement.

Definitions for *standard*, *classification*, *guide*, *practice*, *specification*, *terminology*, and *test method* are quoted below from the current [*Regulations Governing ASTM Technical Committees*](#):

standard, *n*— as used in *ASTM International*, a document that has been developed and established within the consensus principles of the Society and that meets the approval requirements of ASTM procedures and regulations.

DISCUSSION—The term “standard” serves in ASTM International as a nominative adjective in the title of documents, such as test methods or specifications, to connote specified consensus and approval. The various types of standard documents are based on the needs and usages as prescribed by the technical committees of the Society.

classification, *n*— a systematic arrangement or division of materials, products, systems, or services into groups based on similar characteristics such as origin, composition, properties, or use.

guide, *n*— a compendium of information or series of options that does not recommend a specific course of action.

DISCUSSION—A guide increases the awareness of information and approaches in a given subject area.

practice, *n*— a definitive set of instructions for performing one or more specific operations that does not produce a test result.

DISCUSSION—Examples of practices include, but are not limited to: application, assessment, cleaning, collection, decontamination, inspection, installation, preparation, sampling, screening, and training.

specification, *n*— an explicit set of requirements to be satisfied by a material, product, system, or service.

DISCUSSION—Examples of specifications include, but are not limited to, requirements for; physical, mechanical, or chemical properties, and safety, quality, or performance criteria. A specification identifies the test methods for determining whether each of the requirements is satisfied.

terminology standard, *n*— a document comprising definitions of terms; explanations of symbols, abbreviations, or acronyms.

test method, *n*— a definitive procedure that produces a test result.

DISCUSSION—Examples of test methods include, but are not limited to: identification, measurement, and evaluation of one or more qualities, characteristics, or properties. A precision and bias statement shall be reported at the end of a test method. (Refer to Section A21 on Precision and Bias.)

approval date, *n*— the date assigned by ASTM International through the Committee on Standards, which indicates that a new standard, revision or reapproval has successfully completed the balloting and appeals process in accordance with the [*Regulations Governing ASTM Technical Committees*](#).

publication date, *n*— the month/year that an approved standard is made publicly available in either electronic or hardcopy form.

PART A

FORM OF ASTM TEST METHODS

INTRODUCTION

An ASTM test method, as defined on p. vii, typically includes a concise description of an orderly procedure for determining a property or constituent of a material, an assembly of materials, or a product. The directions for performing the test should include all of the essential details as to apparatus, test specimen, procedure, and calculations needed to achieve satisfactory precision and bias.

An ASTM test method should represent a consensus as to the best currently available test procedure for the use intended. It should be supported by experience and adequate data obtained from cooperative tests.

In order to be the “best currently available,” test methods need periodic review to determine whether revisions are desirable as the result of technological advances in manufacturing, testing, and use requirements.

ASTM test methods are frequently intended for use in the buying and selling of materials according to specifications and therefore should provide such precision that when the test is properly performed by a competent operator the results will be found satisfactory for judging the compliance of the material with the specification. These test methods cover the determination of fundamental properties of materials such as density, absolute viscosity, softening point, and flash point. They may include a variety of different laboratory procedures such as chemical and spectrochemical analyses, mechanical and electrical tests, weathering tests, visual examination, fire tests, performance characteristics, sampling, nondestructive tests, and radiation exposure tests. In some standards, optional test methods are included.

Statements addressing precision and bias are required in ASTM test methods. This gives the user of the test method an idea of the nature of the sample to be prepared and analyzed and information regarding the nature of the data obtained by using the method. The requirement of precision and bias statements does not mean that numerical statements are required. It means that the spread of resulting data and its relationship to an accepted reference material or source (if available) shall be addressed. Some test methods have no numerical expression of precision or bias (for example, pass/fail tests, spot tests.) In these cases, precision and bias shall be addressed and the reasons for not including relevant data explained. Test methods are sometimes prepared for use in research rather than in the buying and selling of materials. Other test methods cover process control, screening, and field tests. Although these latter test methods may not always be as precise as referee test methods, they are sufficiently precise for the intended use and usually require less time. Field tests allow testing at the site, thus eliminating transportation of specimens to and from the laboratory.

Special instructions with respect to the legal aspects are included in Part F and shall be followed in writing any standard. These include such matters as contractual items, caveat statements, patents, and fire standards. Assistance on the development of fire standards is available from Committee E05. The policies contained in Part F are approved by and are under the jurisdiction of the ASTM Board of Directors.

When a standard is being developed, the costs associated with its development and subsequent use generally should be considered. The prime objective should be the optimum use of resources to achieve satisfactory definition of the product or service. However, it should be noted that when the standard relates to the safety of persons, cost considerations are likely to become much less important than when attributes of materials or products are involved. Some standards, such as definitions, impose no cost on the user; others that include numerous and extensive requirements can entail significant expense to users of the standard. The requirements to be included should, therefore, be those that are technically relevant and yield benefits commensurate with the cost of their determination.

FORM OF ASTM TEST METHODS

Cost effectiveness statements or rationale may be included within a standard if appropriate, usually in an appendix.

A1. Subject Headings of Text

A1.1 The following is the sequence for the text of ASTM test methods. Headings are those most generally used but may not be all-inclusive. It may be necessary to include other headings for specialized subjects. The headings identified as “mandatory” are required. Other headings shall be included when the subject matter is pertinent to the document under development, in which case, all instructions and guidance for that particular section shall be followed. For example, if the standard does not contain reference to any standard documents within the text, it is not required to include a section on Referenced Documents. If, however, specific hazards are cited throughout the text, then the section on Hazards shall be followed.

	Title (mandatory)
†	Designation (mandatory)
†	Introduction
	Scope (mandatory)
†	Referenced Documents
†	Terminology
	Summary of Test Method
	Significance and Use (mandatory)
	Interferences
	Apparatus
	Reagents and Materials
	Hazards (mandatory when applicable)
	Sampling, Test Specimens, and Test Units
	Preparation of Apparatus
	Calibration and Standardization
	Conditioning
	Procedure (mandatory)
	Calculation or Interpretation of Results
	Report
	Precision and Bias (mandatory)
	Measurement Uncertainty
†	Keywords (mandatory)
†	Annexes and Appendixes
†	References
	Summary of Changes

† The headings marked with a dagger (†) should appear only once in test methods that contain two or more test methods.

A1.2 Not all of these headings may be required for a particular standard. Additional headings that are included to cover specialized subjects should appear in the most appropriate place, depending on their relation to the sections listed in A1.1. When a standard includes several

test methods, repetition of appropriate headings may be desirable.

A1.3 Subject headings in boldface type shall precede each section to orient the reader. Text divisions shall be subdivided in accordance with the Use of the Modified Decimal Numbering System guide in Part D of this publication.

A1.4 For convenience in application and when economy in printing may result, test methods may include a series of procedures for determining the same or different properties of a given material. In such test methods, include at the beginning of the standard individual sections describing those features that are common to all of the separate test methods. Identify different methods within the standard by capital letters, starting with A; i.e., Test Method A, Test Method B, etc.

A1.5 Examples of test methods for single determination:

B331 Test Method for Compressibility of Metal Powders in Uniaxial Compaction
C693 Test Method for Density of Glass by Buoyancy

A1.6 Examples of test methods covering a series of test methods:

D1179 Test Methods for Fluoride Ion in Water
D2137 Test Methods for Rubber Property—Brittleness
Point of Flexible Polymers and Coated Fabrics
F38 Test Methods for Creep Relaxation of a Gasket Material

A1.7 In deciding whether to describe similar test methods as portions of a single standard or as separate test methods, the following criterion may be found useful: When the descriptions of the apparatus and procedure are similar and a significant economy in printing can be accomplished by combining, and if, because of clearly understood distinctions in applicability, no confusion can rise as to which test method should be used, then it is desirable to treat the test methods as parts of a single standard. If confusion could arise, the test methods should be published separately. If one test method is preferred as a referee method, it should be so designated, in which case

FORM OF ASTM TEST METHODS

the other test methods should be designated as optional or nonreferee. When test methods are published separately, a worthwhile saving can be accomplished by making cross-references from one test method to another for the apparatus and detailed description of the procedure.

A2. Title (Mandatory)

A2.1 The title should be concise but complete enough to identify the nature of the test, the material to which it is applicable, and to distinguish it from other similar titles. Titles of analogous standards should be identical, except for the distinctive feature(s) of each standard. Titles are used frequently in lists, tables of contents, indexes, tabulating card systems, etc., and therefore should be brief but inclusive. Select words that easily lend themselves to indexing. The essential features of a title are the particular property or constituent being determined, the material to which the test method is applicable, and when pertinent, the technique or instrumentation. If the test method is designated to determine a number of constituents or properties, use a general title, omitting the names of specific constituents or properties. When a standard includes a number of individual test methods for different constituents or properties, the title need indicate only the general nature of the tests and the material to which it is applicable.

A3. Designation and Year Date

A3.1 *Designation (mandatory)*— The ASTM designation, assigned by Headquarters on submittal for approval, consists of the following sequential parts:

A3.1.1 A letter designation denoting in general the classification according to material, product, system or service.

- A—Ferrous metals and products
- B—Nonferrous metals and products
- C—Cementitious, ceramic, concrete, and masonry materials
- D—Miscellaneous materials and products
- E—Miscellaneous subjects
- F—End-use materials and products
- G—Corrosion, deterioration, weathering, durability, and degradation of materials and products

A3.1.2 A sequential number following the letter designation (for example, Specification C150).

A3.2 *Year Date:* (for example, Specification C150-01).

A3.2.1 After the designation, a hyphen is followed by the last two numbers of the year of acceptance or of last revision. If the standard is revised again during the same year, this is indicated by adding an “a” for the second revision, “b” for the third revision, etc.

A3.2.2 The parenthetical phrase “(Reapproved 20____)” to designate the year of last preapproval of a standard, if applicable.

A3.2.3 For editorial changes that do not change the year designation, a note is inserted before the text to indicate the location and date of the change and a superscript epsilon (ϵ) is added after the year designation. The epsilon designations and corresponding notes are numbered chronologically and are deleted upon occasion of the next revision or reapproval.

A3.3 The designation numbers of standards that have been discontinued are not reassigned.

A3.4 *SI Standards* (see Part H and Section G24.)

A4. Introduction

A4.1 A separate section covering general introductory or informational material is not generally used in ASTM test methods. Occasionally, a test method is of such a nature that it requires an explanatory statement for proper understanding by the user. In such instances an introduction should be included immediately after the title of the test method but without a section number.

A4.2 Examples of test methods that include introductions are as follows:

D143 Test Methods for Small Clear Specimens of Timber
D905 Test Method for Strength Properties of Adhesive Bonds in Shear by Compression Loading

A5. Scope (Mandatory)

A5.1 Include in this section information relating to the purpose of the test method. State if the method is quantitative or qualitative, and any known limitations. Concisely state the property or constituent that is being determined and the

FORM OF ASTM TEST METHODS

materials that can be analyzed. State the range of concentrations/values determined.

A5.2 Include, where applicable, the analytical technique, for example, gas chromatography, and whether the test is performed in the laboratory, field, or on-line.

A5.3 Include in this section the system of units to be used in referee decisions.

A5.4 Include in this section any caveats required by ASTM policy such as the caveats on *safety hazards* (see F2.1) and *fire hazards* (see F2.2).

A5.5 For standards developed for reference in model (building) codes, include the following statement:

The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

A6. Referenced Documents

A6.1 List in alphanumeric sequence the designation and complete title of the following documents referenced within the standard; ASTM standards and adjuncts; and standards and codes of other organizations. For references to all other documents, including ASTM STPs, use the format indicated in Section G21.

A6.2 Provide footnotes to this section to indicate the sources of these documents. When ASTM standards are referenced later in the text, use only the type of standard (that is, specification, test method, practice, classification, guide, terminology, etc.) and the designation letter and number (for example, Test Method D1310).

A6.3 Do not include the year date when designating referenced documents unless there is a technical reason for requiring a particular revision.

A6.4 When listing referenced adjuncts, provide a brief description in this section, and a footnote of the availability. (For more specific information on adjuncts, refer to Section A28).

A7. Terminology

A7.1 Every standard should include a section on terminology.

A7.1.1 All significant terms that may have a meaning more specialized than the commonly

used language should be defined within a standard or the terminology standard should be referenced. (See Part E on Terminology.)

A7.1.2 To avoid redundant definitions, check the committee terminology standard, terminology sections within committee technical standards, and the *ASTM Online Dictionary of Engineering Science and Technology*.

A7.2 *Terminology Within a Standard*— This section may include paragraphs on definitions, definitions of terms specific to a standard, symbols, abbreviations, acronyms, discussions, or a combination thereof.

A7.2.1 *Definitions*— Write a definition in the dictionary-definition form and assign a section number, term, part of speech, definition, and, when applicable, a delimiting phrase. Italicize the term, part of speech, and delimiting phrase. Do not capitalize the term or any other components of the definition except for proper nouns, acronyms, or any other words capitalized in normal usage (see Section E4). List the terms in alphabetical order. Example follows:

3. Terminology—(Always use as the main heading.)

3.1 *Definitions*:

3.1.1 *color blindness*, *n*—total or partial inability to differentiate certain hues.

3.1.2 *transmittance*, *n*—of light, that fraction of the incident light of a given wavelength which is not reflected or absorbed, but passes through a substance.

A7.2.2 *Discussions*— When more detail of the concept being defined is desirable, supplementary information should be added as a separate numbered paragraph labeled “Discussion” immediately following the definition. Use the term “Discussion” instead of “Note” (see E5.8). Example follows:

3.1.2.1 *Discussion*—Extraneous leakage is the sum of all leakage other than that intended to be measured by the test.

E283

A7.2.3 *Definition(s) of Term(s) Specific to This Standard*— This is a term that is specific to the standard in which it is used and that has no application out of that context. Write a definition of term specific to a standard in the dictionary-definition form and include a section number,

FORM OF ASTM TEST METHODS

term, part of speech, definition, and, when applicable, a delimiting phrase. Italicize the term, part of speech, and delimiting phrase. Do not capitalize the term or any other components of the definition except for proper nouns, acronyms, or other words capitalized in normal usage (see Section E4). List the terms in alphabetical order. Example follows:

3.1 *Definition of Terms Specific to This Standard:*

3.1.1 *batch sampling, n*—sampling over some time period in such a way as to produce a single test sample for analysis.

D4175

A7.2.4 *Symbols*— In a standard with numerous equations containing identical quantity symbols, symbols may be listed alphabetically and unnumbered in this section instead of under each equation; also italicize the symbol and do not capitalize the definition. (See also Section E6.) Example follows:

3.1 *Symbols:*

A = cross-sectional area of specimen

B = normal induction

A7.2.5 *Referencing Terminology Standard*— If the terminology applicable to the standard is included in a terminology standard, cite the applicable terminology standard. Example follows:

3.1 *Definitions:*

3.1.1 For definitions of terms used in this test method, refer to Terminology D1129.

A8. Summary of Test Method

A8.1 Include here a brief outline of the test method, describing in the passive voice its essential features without the details that are a necessary part of the complete statement of procedure. If desired, a brief statement of the principle of the test method may be given; this is particularly desirable in the case of chemical methods and should appear as the first paragraph. In chemical methods state the type of procedure, such as colorimetric, electrometric, and volumetric, and describe the source of color, major chemical reaction including pertinent chemical equations, etc.

A9. Significance and Use (Mandatory)

A9.1 Include in this section information that explains the relevance and meaning of the test. State the practical uses for the test and how it is typically employed. Avoid repetition of information included in the Scope (see Section A5). Include statements to provide the user with comprehensive understanding of the following:

A9.1.1 The meaning of the test as related to the manufacture and end use of the material,

A9.1.2 The suitability of the test for specification acceptance, design purposes, service evaluation, regulatory statutes, manufacturing control, development and research, and

A9.1.3 The fundamental assumptions inherent in the test method that may affect the usefulness of the results.

A9.2 Include any discretion needed in the interpretation of the results of the test.

A9.3 Include, where applicable, comparisons of the test to other similar procedures.

A10. Interferences

A10.1 If the successful application of the test method requires the inclusion of explanatory statements on interference effects, include such information here; otherwise, omit this section. List briefly the constituents or properties that are likely to cause interference and the amounts that are known to interfere. In some cases this information is obtainable only by observation during the performance of the test. If the presence of an interfering factor affects the precision or bias of the test results and compensations are made in the calculations (Section A19), this should be explained in this section and noted in the appropriate section. In some cases, interferences may be a major factor in judging test results and explanations of their effects may become lengthy. Lengthy explanations may be placed in an annex to the standard.

A11. Apparatus

A11.1 In this section, include a brief description of the essential features of the apparatus and equipment required for the test, and, where they clarify or supplement the text, schematic drawings or photographs. Cover in separate

FORM OF ASTM TEST METHODS

text divisions the important features and requirements for the apparatus. Do not list common laboratory apparatus, such as flasks and beakers, but include any especially modified forms or unusual sizes of common apparatus that are required or that may require special preparation.

A11.2 Trademarks shall not be used unless a specific manufacturer's product is required for a well-defined reason (see Section F3 for regulations regarding patents in ASTM standards). In such cases an explanatory footnote shall be included giving supplementary information regarding such apparatus or material. The footnote shall state that this apparatus or material "has been found satisfactory for this purpose." When special types of glassware are required, such as heat-resistant and chemical-resistant, state the significant characteristic desired rather than a trademark. For example, use "borosilicate glass" rather than "Pyrex" or "Kimax." Specify filter paper by describing the significant characteristic such as porosity, rate of filtering, and ash content, or by reference to ASTM Specification E832, for Laboratory Filter Papers

NOTE A1—Policies have been adopted by the Board of Directors that are applicable to standards involving patented apparatus, materials, and processes. These policies are described in the [Regulations Governing ASTM Technical Committees](#). Before submitting to subcommittee or main committee ballot any draft test method that requires a specific manufacturer's product, consult the Staff Manager of your committee as to necessary conformance with the [Regulations Governing ASTM Technical Committees](#).

A11.3 Detailed manufacturing requirements for apparatus, unless quite brief, should preferably be placed in an annex to the test method (see A24.3), retaining in the text only a brief outline with schematic drawings or illustrations where necessary. The purpose of this outline is to provide information regarding the essential features of the apparatus, to enable the user to assemble the equipment and understand its use in the test method.

A11.4 When essentially the same apparatus is used for more than one standard and the description of the apparatus requirements is lengthy, it is recommended that the complete specifications for the apparatus be included in an annex to one standard and merely a reference be

made to them in the other standard, mentioning under "Apparatus" only such modifications as may apply in each particular case.

A11.5 When the same apparatus is used in several standards, the detailed specifications should be covered by a separate ASTM standard. Examples of such standards are:

E1 Specification for ASTM Thermometers
E133 Specification for Distillation Equipment

A11.6 It is the responsibility of the sponsoring committee to assure itself that suitable apparatus is available (see Section F4).

A11.6.1 If the apparatus is special or not readily available, detailed rules for referencing sources of supply shall be followed (see Section F4).

A11.6.2 If the apparatus has to be built, blueprints, plans, etc., should be cited in a footnote in this section as available through ASTM International Headquarters as adjunct material to the standard.

A12. Reagents and Materials

A12.1 When more than one procedure is included in one standard, list the reagents and materials required for each procedure as a separate section under each subdivision.

A12.2 It is recommended that, where applicable, the following be included as secondary sections ".1" and ".2" of this section:

6.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society where such specifications are available.¹ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

6.2 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Type ___ of Specification D1193.

NOTE A2—The identifying number (for example 6.1 and 6.2 as above) used in recommended texts are for illustrative purposes.

FORM OF ASTM TEST METHODS

¹ *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

A12.2.1 If a different grade of water is required, add a second sentence as follows: “Water conforming to the following specifications is required” (list the specific properties, kinds of ion freedom, etc.)

A12.2.2 In standards covering two or more chemical methods these statements on purity should be made in a separate section entitled “Purity of Reagents.”

A12.3 List the reagents alphabetically in separate divisions. Give the name of the reagent first, followed by any descriptive terms (see A12.7). State the desired concentration if significant; then follow with instructions for preparation and standardization (if required), using the imperative mood and concise descriptions. Spell out the full name of the reagent, and immediately after the first mention of the name include within parentheses the exact chemical formula of the reagent showing any water of crystallization, etc. Exception to this may be made in the case of organic, organometallic, or complex inorganic compounds by omitting the chemical formula. Subsequent references to compounds shall be by formula only where they can be clearly specified by this means, as in the case of most inorganic compounds. As exceptions, always spell out the word “water” and the names of substances in their elementary state; for example, use lead, not Pb; oxygen, not O₂. If the reagent is to be used as purchased, and not diluted, dissolved, or purified, state the chemical formula as given by the manufacturer.

A12.4 Do not use trademarks unless a specific manufacturer’s product is required for a well-defined reason. (See Section F4.) In this case, use a superior reference number to refer to a footnote giving the required information, incorporating the phrase “has been found satisfactory for this purpose.” Where particular reagents are required only for standardization or calibration, identify them by reference to an appropriate

footnote such as “This reagent is used for standardization purposes only.”

A12.5 Specify the reagent concentration in applicable terms, as follows:

Concentrated acids and bases ... density, unless mass percent is more generally used or required

Dilute acids and bases ... volume ratio, X + Y (X volumes of reagent added to Y volumes of water)

Nonstandardized solutions ... grams of reagent as weighed out per litre of solution

Standardized solutions ... normality, expressed decimally; or the equivalent of 1 mL of solution in terms of grams of a given element expressed as “1 mL + xxx g of ...”

A12.6 Wherever possible, use the same concentrations of reagents and methods of standardization as used in other similar ASTM test methods.

A12.7 Examples of reagent descriptions are as follows:

A12.7.1 *Ammonium Carbonate* (NH₄)₂CO₃).

A12.7.2 *Sodium Chloride Solution* (100 g/L)—Dissolve 100 g of sodium chloride (NaCl) in water and dilute to 1 L.

A12.7.3 *Potassium Hydroxide, Methanol Solution* (33 g/L)—Dissolve 33 g of potassium hydroxide (KOH) in methanol and dilute to 1 L with methanol.

A12.7.4 *Barium Chloride Solution* (100 g BaCl₂/L)—Dissolve 117.3 g of barium chloride dihydrate (BaCl₂ · 2H₂O) in water and dilute to 1 L.

A13. Hazards

A13.1 *Safety Hazards*— Paragraph F2.1 specifies the generic safety hazards caveat and the types of standards in which it shall be used. Other statements on safety are subject to the following policies.

A13.1.1 *Warning Statement*— A warning statement identifies a specific hazard and provides information for avoiding or minimizing a particular hazard. When there are hazards to personnel, such as explosion, fire toxicity, or radiation, or technical hazards, such as damage to equipment, a warning statement shall be placed at the appropriate point in the text beginning with “Warning” in boldface type followed by a

FORM OF ASTM TEST METHODS

description of the hazard, or a reference to a description of the hazard within the body of the standard (refer to A13.1.2).

A13.1.2 *Remedial Statements*— A remedial statement provides recommendations for treating a situation resulting from an unsuccessfully controlled hazard *associated with the use of a standard*. Such remedial statements shall not be included in standards, but reference may be made in a note to authoritative sources where reliable information about remedial measures can be obtained such as the appropriate Material Safety Data Sheet (MSDS) where applicable.

A14. Sampling, Test Specimens, and Test Units

A14.1 Under this heading give necessary special directions, in the imperative mood, for physically obtaining sample test units. If a test result is defined as a combination of the observations made on different test specimens, particularly describe how these specimens are to be selected. Give necessary special directions for storage of specimens, for preservation of specimens, and for special preparation of specimens for the test.

A14.2 Statistical aspects of sampling for a specific purpose, for example, in determining conformance of the mean properties of a lot to specifications, should be referenced or discussed in an appendix. These statistical aspects might include stratification, selection of primary and secondary sampling units, the number of such units to be selected, in the case of bulk material the number of increments combined to form a composite sample, the number of composites to be formed, the method of subsampling a composite, and the number of tests made on a subsample.

A14.3 If the method of sampling is described in an existing ASTM test method or ASTM specification, refer to that test method or specification by designation.

A14.4 If the method of sampling is detailed in a readily available publication other than an existing ASTM standard, refer to the publication in a footnote, arranging the information in accordance with the suggestions presented in the Standards Style Manual, Part G, of this publication.

A14.5 Where an existing sampling method (other than ASTM) is cited in a test method, guidelines should be given as to the use of the sampling scheme and precautions if needed. If explanatory documents regarding sampling are available, these should be cited in this section.

A14.6 A *test unit* is a unit or portion of a material that is sufficient to obtain a test result(s) for the property or properties to be measured. A *test specimen* is a test unit or portion of a test unit upon which a single or multiple observation is to be made. A *test result* refers to the value obtained for a given property from one test unit. A test unit may be a subunit of a primary (first stage) sampling unit or it may be a subunit of a composite of primary sampling units or of increments from these primary sampling units. A test result may be a single observation or a combination of a number of observations when two or more test specimens are measured for each test unit. (For additional information see Section G23.)

A14.7 The size of the test unit for chemical analysis usually is given in the “Procedure” section, but if significant in connection with pretreatment or preparation, it should be included here. When a test specimen is specified by mass, indicate the degree of precision desired.

A14.8 Include detailed requirements as to the size and number of test specimens to be used for both physical and chemical tests. Where a test specimen or test unit of a particular shape is required, the essential dimensions shall be specified, including tolerance. A drawing showing the details of the specimen or test unit may be included.

A15. Preparation of Apparatus

A15.1 Use this section only when detailed instructions are required for the initial assembly, conditioning, or preparation of the apparatus (see also A24.3.6).

A16. Calibration and Standardization

A16.1 *Apparatus*— Give detailed instructions, in the imperative mood, for calibration and adjustment of the apparatus necessary for the use of the test method.

FORM OF ASTM TEST METHODS

A16.2 Reference Standards and Blanks— Give detailed instructions for the standardization and use of reference standards and blanks used in the test method. Describe any standard samples used to assure uniformity of the test technique, and standard specimens or photographic standards.

A16.3 Calibration Curves and Tables— Give detailed instructions for the preparation and use of calibration curves or tables, in accordance with the suggestions presented in the Standards Style Manual, Part G, of this publication. Include in the instructions for curve or table preparation items such as calibration, solutions, reference standards, blanks, color development, photometry, and construction.

A17. Conditioning

A17.1 Specify, in the imperative mood, the conditioning atmosphere to be used and the time of exposure to the atmosphere, as well as the atmosphere required during the test, where necessary. State whether the conditioning requirements apply to laboratory samples as well as individual specimens. Indicate any requirements for preconditioning. Where applicable, refer to ASTM Terminology E41, Terms Relating to Conditioning, and to ASTM Practice E171/E171M, for Conditioning and Testing Flexible Barrier Packaging.

A18. Procedure (Mandatory)

A18.1 Include in proper sequence detailed directions for performing the test. Describe the procedure in the imperative mood, present tense; for example: “Heat the test specimen ...” rather than “The test specimen shall be heated ...” State the number of samples to be taken, and also state the number of specimens to be tested from each sample. Describe in detail the successive steps of the procedure, grouping related operations into logical divisions. Subheadings may be used if they will help the organization of the material. Make the text of the procedure concise, to the point, and easily understandable. When alternative procedures are given, state their relative status; that is, which is the preferred or referee procedure.

A18.2 In chemical methods, specify the size of test specimen and indicate the degree of precision desired in the weighing. Consider the specimen size and its accuracy of weighing in connection with the ultimate use of the method. If the formula for a reagent has been given previously in accordance with the instructions given in A12.3, refer to the reagent by chemical formula only or name, whichever is less confusing. Otherwise, spell out the name of the reagent. The procedure shall provide for any operations necessary to obtain any correction data that may be needed.

A19. Calculation or Interpretation of Results

A19.1 Calculation— State the directions in the imperative mood for calculating the results of test including any equations and any required significant figures (see also Section G16 and ASTM Practice E29 for Using Significant Digits in Test Data to Determine Conformance with Specifications.) Spell out names in the text but use letter symbols in the equations to designate individual values. Use numerical values for any constants. Describe the letter symbol immediately under the equation (unless a section on symbols is included; see A7.2.4). Avoid the use of combined factors in chemical methods. Indicate the reference point on which the calculations are based, such as on the sample as received and dry basis, and the units in which the results are reported. If necessary for clarity, a typical calculation should be included in an explanatory note.

A19.1.1 An example of a typical equation is:

$$\text{Aluminum, \%} = \frac{(A \times B) \times 0.0587}{C} \times 100$$

where:

A = grams of aluminum oxyquinolate found in the aliquot used,

B = grams of aluminum oxyquinolate found in the blank, and

C = grams of sample represented in the aliquot used.

A19.2 Interpretation of Results— Use this heading in place of “Calculation” when the results of the test are expressed in descriptive form, relative terms, or abstract values. List and

FORM OF ASTM TEST METHODS

define the descriptive terms or classifications used. The results of a test may be interpreted or expressed in terms of a rating scale. There is fairly wide agreement on five-step scales for many values or rankings of merit, with 5-good, 3-middle, 1-bad. In general, a higher score for more of a desirable property is the more satisfactory arrangement. This eliminates confusion arising from No. 1 in rank for the most of a quantity, without regard to the relative desirability.

A19.2.1 Examples of test methods that include rating systems are:

D130 Test Method for Detection of Copper Corrosion from Petroleum Products by the Copper Strip Tarnish Test

D3511/D3511M Test Method for Pilling Resistance and Other Related Surface Changes of Textile Fabrics: Brush Pilling Tester Method

A20. Report

A20.1 State in this section the detailed information required in reporting the results of the test. When two or more procedures are described in a test method, the report shall indicate which procedure was used. When the test method permits variation in operating or other conditions, incorporate in the report a statement as to the particular conditions used in the test. As an aid in the calculation and uniform recording of test results a standard report form or work sheet may be used, and if desirable a facsimile of the form may be included in the test method. Introduce the section as follows: "Report the following information:"

A21. Precision and Bias (Mandatory)

A21.1 *Definitions and Additional Information:*

A21.1.1 For precise definitions of statistical terms, refer to ASTM Terminology E456, Relating to Quality and Statistics.

A21.1.2 For more information on calculation methods relating to the use of statistical procedures, refer to ASTM Practices E177 and E691.

A21.2 *Statement of Precision (Mandatory):*

A21.2.1 Precision is the closeness of agreement between test results obtained under prescribed conditions. A statement on precision

allows potential users of the test method to assess in general terms its usefulness in proposed applications. A statement on precision is not intended to contain values that can be duplicated in every user's laboratory. Instead the statement provides guidelines as to the kind of variability that can be expected between test results when the test method is used in one or more reasonably competent laboratories.

A21.2.2 Precision shall be estimated in accordance with the interlaboratory test program prescribed in Practice E691, Conducting an Interlaboratory Study to Determine the Precision of a Test Method, or by an interlaboratory test program that yields equivalent information, for example, a standard practice developed by an ASTM technical committee. The data and details of the interlaboratory study to determine precision shall be filed as a research report at ASTM International Headquarters. The precision statement shall include reference to the research report in a Note.

A21.2.3 Every test method shall contain: (1) a statement regarding the precision of test results obtained in the same laboratory under specifically defined conditions of within-laboratory variability (repeatability conditions); and (2) a statement regarding the precision of test results obtained in different laboratories (reproducibility conditions).

A21.2.4 The repeatability conditions defined in Terminology E456 shall be used; namely, within-laboratory conditions under which test results are obtained with the same test method in the same laboratory by the same operator with the same equipment in the shortest practicable period of time using test specimens taken at random from a single quantity of homogeneous material. If some other within-laboratory variability is also determined (such as for longer times or different operators within a laboratory), the particular conditions shall be reported in detail, and the precision designated "intermediate precision" (see Terminology E456). If the committee formerly called this repeatability, add "(formerly called repeatability)."

A21.2.5 The statement regarding between-laboratory variability shall pertain to test results obtained with the same method on random test

FORM OF ASTM TEST METHODS

units from the same lot of homogeneous material in different laboratories with different operators using different equipment (reproducibility conditions).

A21.2.6 The precision statement shall include the repeatability standard deviation and reproducibility standard deviation; and shall include the 95 % repeatability limit and the 95 % reproducibility limit for the largest expected differences between two test results. The latter are numerically equal to 2.8 times the respective standard deviation for data that are known to be normally distributed, and approximately so for most other data encountered in ASTM committee work. Use a statement such as the following:

*Precision*¹—The repeatability standard deviation has been determined to be (insert repeatability value) and the 95 % repeatability limit is (insert value). The reproducibility standard deviation has been determined to be (insert reproducibility value) and the 95 % reproducibility limit (insert value).

¹Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR: (insert report number). Contact ASTM Customer Service at service@astm.org.

A21.3 *Statement on Bias (Mandatory):*

A21.3.1 Bias is a systematic error that contributes to the difference between the mean of a large number of test results and an accepted reference value. A discussion on bias may be found in statistical documents, such as Practices E177 and C670.

A21.3.2 The bias statement shall describe the bias and methods employed to provide corrected test results. If the bias is not known but the direction or bounds on the bias, or both, can be estimated, these shall be reported in the bias statement.

A21.4 *General Considerations:*

A21.4.1 The precision and bias section of the test method shall include a brief descriptive summary of the interlaboratory study that will permit the user of the test method to judge the reliability of the data. This summary should include number of laboratories, number of property levels tested, range of the measured average property levels, and number of replicate tests. The summary may be included in a Note.

A21.4.2 If precision or bias, or both, varies with the test level, the variation shall be described in the statement.

A21.4.3 When revising or reapproving a test method, ensure that the information reported in the Precision and Bias section and the supporting data are still valid. If there has been a change to the test method that could affect precision, a new interlaboratory study should be conducted.

A21.5 *Exceptions:*

A21.5.1 If the responsible committee decides that an interlaboratory study for a new test method should be delayed, a temporary statement shall be included which addresses only repeatability based on the results from a single operator. A repeatability limit is not included. This temporary precision statement is permitted for five years, use a statement such as the following:

*Precision*¹—The repeatability standard deviation from a single operator has been determined to be (insert repeatability value or values for different average property values).

¹An interlaboratory study of this test method is being conducted and a complete precision statement is expected to be available on or before (insert year).

A21.5.2 If it is not feasible to determine the reproducibility, as directed in A21.2, within five years of the first approval of the standard, use a statement such as the following:

*Precision*¹—The repeatability standard deviation from a single operator has been determined to be (insert the average test values and corresponding repeatability values).

¹The reproducibility of this test method is not provided at this time because (insert here the reason or reasons). The reproducibility of this test method is being determined and is expected to be available on or before (insert year).

A21.5.3 When a test method specifies that the procedure in another ASTM test method is to be used without modification, no statements of precision and bias are necessary if those in the other test method are applicable. When a test method specifies that the procedure in another ASTM test method is to be used with only insignificant modification(s), use a statement

FORM OF ASTM TEST METHODS

such as the following to assure the reader that precision and bias are not affected by the modification(s):

Precision and Bias—The precision and bias of this test method for measuring (insert here the name of the property) are essentially as specified in Test Method (insert here the designation of the other test method).

When a test method specifies that the procedure in another ASTM test method is to be used with significant revisions, provide statements on precision and bias as directed in A21.2 and A21.3.

A21.5.4 When a test method specifies that a test result is a nonnumerical report of success or failure or other categorization or classification based on criteria specified in the procedure, use a statement on precision and bias such as the following:

Precision and Bias—No information is presented about either the precision or bias of Test Method X0000 for measuring (insert here the name of the property) since the test result is nonquantitative.

A21.5.5 If it is not possible to provide a statement on precision (repeatability or reproducibility) as directed in A21.2, use a statement such as the following:

Precision—It is not possible to specify the precision of the procedure in Test Method X0000 for measuring (insert here the name of the property) because (insert here the reason or reasons).

Citing impracticability is not warranted if the reason is that an interlaboratory study has revealed that the precision is poor or that the standard was written before precision statements were required.

A21.5.6 If bias cannot be determined, a statement to this effect shall be included, such as the following:

Bias—No information can be presented on the bias of the procedure in Test Method X0000 for measuring (insert here the name of the property) because (insert here the reason; such as “no material having an accepted reference value is available”).

A22. Measurement Uncertainty

A22.1 Measurement uncertainty is an estimate of the magnitude of systematic and random measurement errors that may be reported along with the measurement result. An uncertainty statement relates to a particular result obtained in a laboratory carrying out the test method, as opposed to precision and bias statements which are mandatory parts of the method itself and normally derived from an interlaboratory study conducted during development of the test method.

A22.2 It is neither appropriate for, nor the responsibility of, the test method to provide explicit values that a user would quote as their estimate of uncertainty. Uncertainty values must be based on data generated by a laboratory reporting results using the test method.

A22.3 In this section include guidance for developing estimates of uncertainty to be reported with test results. Suggestions should be considered for studies to perform, listings of the potential major contributing factors to uncertainty, descriptions of how the variation due to each factor might be evaluated, and examples of how they might be combined. Information of this type is particularly useful to users of the test method seeking laboratory accreditation. Information on measurement uncertainty may be placed in an appendix if it is for information only.

A22.4 For additional guidance refer to Guide E1488.

A23. Keywords (Mandatory)

A23.1 In this section, identify the words, terms, or phrases, that best represent the technical information presented in the standard. Select the keywords from the title and body of the document and include general, vernacular, and trade terms. These keywords will be used in the preparation of the ASTM Subject Index.

A23.2 Select three or more keywords that describe the names of tests, procedures, special materials, or the specific application(s) that will facilitate the identification and retrieval of the standard.

FORM OF ASTM TEST METHODS

A23.3 All selected keywords shall be stand-alone terms; the type of standard, incomplete phrases, unattached adjectives, etc., shall not be used.

A24. Annexes and Appendixes

A24.1 Additional information may be included in one or more annexes and appendixes to the test method.

A24.2 The words “Mandatory Information” shall be included directly under the title of annexes and the words “Nonmandatory Information” shall be included directly under the title of appendixes.

A24.3 *Annexes*— Include in annexes any detailed information such as that on apparatus or materials that is a mandatory part of the test method but too lengthy for inclusion in the main text. Annexes shall precede appendixes. Examples of such information are as follows:

A24.3.1 Glossary of terms used in the method,

A24.3.2 List of symbols,

A24.3.3 Detailed description of apparatus,

A24.3.4 Instructions for calibrating and standardizing apparatus,

A24.3.5 Directions for cleaning apparatus, and

A24.3.6 Operating instructions and adjustments of specific makes of apparatus.

A24.4 *Appendixes*— An appendix to an ASTM standard is informative only and is not a mandatory part of the standard. Information on the following general subjects has been included in such appendixes:

A24.4.1 Notes on significance and interpretation of the test method, usually to amplify the statement in the text,

A24.4.2 Development of equations used in the calculations,

A24.4.3 Charts or supplementary information for computations,

A24.4.4 Suggested data forms for recording test results, and

A24.4.5 Commentary on rationale used in the development of the test method.

A25. References

A25.1 Include only references to publications supporting or providing needed supplementary information. Historical and acknowledgment references are not desirable. If there are five or more references, list them in an unnumbered section at the end of the standard in the order in which they appear in the text. If there are fewer than five literature references, use footnotes (see Section G21).

A26. Footnotes

A26.1 *General*— Footnotes referenced in the text are intended only for reference and shall never include any information or instructions necessary for the proper application of the method. Table footnotes are a part of the table. Use consecutive superior numerals for reference to footnotes except in connection with tables, in which case use italic capital letters.

A26.2 *Committee Jurisdiction and History*— Footnote 1 shall include in the first paragraph the committee having jurisdiction and, where the committee so requests, the subcommittee. The second paragraph shall include history information as follows: (1) approval date of latest revision, (2) month and year of publication, (3) designation and year of original issue, (4) designation and year of previous issue, and (5) information as to any other standards that may have been replaced by the standard, year of redesignation, etc.

A26.3 *Literature References*— Use footnotes for references if there are fewer than five. For five or more see Section A25, observing the limitations noted therein. Also see Section G21.

A26.4 *Sources of Apparatus*— Where apparatus may be special or not readily available from more than one source, the source may be referenced. (However, see Section F4 for detailed rules.)

A26.5 *Research Reports*— Reference in a footnote the availability of Research Reports (see Section A29).

A27. Notes

A27.1 Notes in the text shall not include mandatory requirements. Notes are intended to

FORM OF ASTM TEST METHODS

set explanatory material apart from the text itself, either for emphasis or for offering informative suggestions, which are not properly part of the standard. Clarification of the description of required apparatus or procedure and modifications required or permitted in certain cases belong in the text itself. If inclusion of the contents yields a different result, then that information is considered mandatory for the performance of the standard and shall be located in the text. Notes may be preferable for detailed description of auxiliary procedures (for example, correction of barometric pressure in a test method not primarily concerned with pressure). Table notes are a part of the table and are mandatory provisions.

A27.2 Notes appearing in a given standard shall be numbered in sequence separately in the main text, separately in sequence in the annex, and separately in sequence in the appendix and should appear at the end of the paragraph to which they pertain. If it is desired to refer to a text note in connection with a specific word or phrase in the text, that word or phrase should be followed by a reference to the note, “(NOTE 1),” etc.

A27.3 Notes in the text are preferred for the following:

A27.3.1 To refer to editorial changes made in the text,

A27.3.2 To refer to similar or companion ASTM standards,

A27.3.3 Limitations of the application of the test when not covered in the text.

A27.3.4 Description, if included under “Scope,” of experimental means for recognizing cases where the method is not applicable to the material under test.

A27.3.5 Description of additional (not alternative) apparatus, materials, procedures, or calculations that are not actually required; or description of merely recommended forms of construction of required apparatus.

A27.3.6 Explanation, if desired, of the reasons for a certain requirement or direction. If brief, include in the text rather than as a note.

A27.4 *Patent Disclaimer of Liability*— See Section 15 of the [Regulations Governing ASTM Technical Committees](#). This note, quoted in F3.2

and not numbered, is generally placed at the end of the standard. Refer questions regarding the applicability of this section to the Staff Manager of your committee.

A27.5 *General Statement of ASTM Policy*— This note, quoted in F2.3 and not numbered, is generally placed at the end of the standards after the note on Patent Disclaimer of Liability.

A28. Adjuncts

A28.1 Occasionally, it is not practicable to publish as an integral part of the standard, because of its nature, material that may be required for use of the standard. Such material is published as an adjunct.

A28.2 Include a description of the adjunct in the text of the standard. If appropriate, include a figure (illustration) of the adjunct.

A28.3 When adjunct material is indicated, it shall be made available at the time of publication of the standard.

A28.4 Include all referenced adjuncts in the Referenced Documents section (see Section A6).

A28.5 Examples of adjuncts are as follows:

A28.5.1 Comparison standards such as the copper strip corrosion standards for Test Method D130 (lithograph aluminum strips),

A28.5.2 Charts such as the viscosity-temperature charts for liquid petroleum for D341,

A28.5.3 Reference radiographs such as E155 or reference photographs, such as E125,

A28.5.4 Technical data such as the twelve volumes of D1250, Petroleum Measurement Tables, and

A28.5.5 Drawings such as detailed drawings for the construction of the smoke chamber in Test Method D2843.

A29. Research Reports (Mandatory for Precision and Bias Statements Producing Numerical Results)

A29.1 Where numerical data have been generated to establish the precision and bias of a test method, a research report is required. The research report shall include a list of participating laboratories, description of samples, a copy of the laboratory instructions, the equipment/apparatus

FORM OF ASTM TEST METHODS

used, the data, a statistical summary and a copy of the Precision and Bias Statement, where applicable. A guide for the research report is available at www.astm.org or from ASTM International Headquarters. The research report shall be placed on file at ASTM. A number is assigned by ASTM and a copy may be obtained upon request. A footnote shall be placed in the standard stating that a copy of the research report may be obtained from ASTM, giving the “RR” designation number.

A30. Rationale

A30.1 The inclusion of a rationale (commentary) section in ASTM standards is encouraged to ensure that brief and concise documentation is available to the user of the standard and to provide traceability and clarification of past actions. This documentation may include: (1) a brief history of the development of a new standard or revision to an existing standard including when and why the effort was initiated, (2) reasons and justification for requirements, (3) documentation of factors considered, and (4) listing of technical sources and literature.

A30.2 If included, this information shall appear in an appendix of the standard.

A30.3 Examples of standards that include section on rationale:

E84 Test Method for Surface Burning Characteristics of Building Materials

F746 Test Method for Pitting or Crevice Corrosion of Metallic Surgical Implant Materials

A31. Summary of Changes

A31.1 If the committee chooses to provide a Summary of Changes, place this unnumbered

section at the end of the standard and begin with the following introductory paragraph:

Committee XXX has identified the location of selected changes to this standard since the last issue (insert designation and year date) that may impact the use of this standard.

A31.2 An asterisk will appear after the Scope (**Scope***) with the following wording at the bottom of the first page:

***A Summary of Changes section appears at the end of this standard.**

A31.3 Next list, by section or subsection, changes made since the last issue that may impact the use of the standard. For standards that have undergone multiple revisions in a short period of time, keep the Summary of Changes in the standard for 18 months. This will ensure that all changes from one publication of the Annual Book of ASTM Standards to the next are recorded. Brief descriptions of the changes and reasons for the changes may be included. If desired, a more extensive description of reasons for the changes should be placed in the appendix.

A31.4 An example of the list of changes is:

- (1) Deleted Section 5 and renumbered subsequent sections.
- (2) Updated precision statement in Section 10 to reflect the results of a recent interlaboratory study.
- (3) Revised hardness requirements in Table 2.
- (4) Revised Section 14 on Product Marking.

PART B

FORM OF ASTM SPECIFICATIONS

INTRODUCTION

The broad scope of ASTM International, which covers materials, products, systems, and services, and the need to provide for a variety of approaches to the writing of ASTM specifications, prevent the development of a single document or a series of documents that list all subjects to be covered in all ASTM specifications. This document, however, is intended to provide considerable guidance to the committees in their specification-writing activities.

Special instructions with respect to the legal aspects shall be followed in writing any standard. These include such matters as contractual items, caveat statements, patents, and fire standards. Assistance on development of fire standards is available from Committee E05. See Part F for details.

When a standard is being developed, the costs associated with its development and subsequent use generally should be considered. The prime objective should be the optimum use of resources to achieve satisfactory definition of the product or service. However, it should be noted that when the standard relates to the safety of persons, cost considerations are likely to become much less important than when attributes of materials or products are involved. Some standards, such as definitions, impose no cost on the user; others that include numerous and extensive requirements can entail significant expense to users of the standard. The requirements to be included should, therefore, be those that are technically relevant and yield benefits commensurate with the cost of their determination.

Cost effective statements or rationale may be included within a standard if appropriate, usually in an appendix.

Standards or sections of standards relating to the *safe use or performance* of consumer products (see NOTE B1) may be sent to Committee F15 on Consumer Products for review and comment at some appropriate stage prior to letter ballot of the originating main committee. This review is offered by Committee F15 to provide for the maximum of consumer input. Draft standards submitted to Committee F15 will receive rapid and constructive critique.

NOTE B1—Consumer products are those designed primarily for use by the consumer in and around the home, school, or recreational areas.

B1. Functions

B1.1 Specifications (see definition on p. vii) may have three functions and, although many specifications serve all three, it is well that those drafting specifications keep these functions in mind so that the primary purposes are not confused.

B1.1.1 *Purchasing*— Specifications facilitate dealings between the purchaser and the supplier. Sufficient requirements should be included to ensure that all batches, lots, or deliveries from any seller that conform to the specification will be satisfactory to the purchaser. Unnecessary requirements are likely to increase costs and should be avoided.

B1.1.2 *Standardization*— Standardization is an inevitable byproduct of most specifications. In some cases it may be the primary function. Standardization involves a deliberate and possibly arbitrary choice of a limited number from the multiplicity of qualities, sizes, compositions, etc., that may be available.

B1.1.3 *Providing Technical Data*— All specifications contain technical information, but in some cases the designer requires more information than that provided for purchase or standardization. Committees may add information of this type to specifications either as requirements or as appendixes.

B1.2 *Open-End Agreements*— There shall be no statements in specifications that allow

FORM OF ASTM SPECIFICATIONS

agreement between purchaser and supplier that do not meet the minimum requirements of the specification by such means as omitting tests that are a part of the specification, substituting or modifying a test method, or by changing the specification limits to be less restrictive.

B2. Subject Headings of Text

B2.1 The following is the sequence for the text of ASTM specifications. Headings are those most generally used, but may not be all-inclusive. It may be necessary to include other headings for specialized subjects. The headings identified as “mandatory” are required. Other headings shall be included when the subject matter is pertinent to the document under development, in which case, all instructions and guidance for that particular section shall be followed. For example, if the standard does not contain reference to any standard documents within the text, it is not required to include a section on Referenced Documents. If, however, specific hazards are cited throughout the text, then the section on Hazards shall be followed. Not all of these headings may be required for a particular standard. Additional headings, which are included to cover specialized subjects, should appear in the most appropriate place and sequence depending on their relation to the sections below.

Title (mandatory)
Designation (mandatory)
Scope (mandatory)
Referenced Documents
Terminology
Classification
Ordering Information
Materials and Manufacture
Chemical Composition
Physical Properties
Mechanical Properties
Performance Requirements
Other Requirements
Dimensions, Mass, and Permissible Variations
Workmanship, Finish, and Appearance
Sampling
Number of Tests and Retests
Specimen Preparation
† Test Methods
Inspection
Rejection and Rehearing
Certification
Product Marking
Packaging and Package Marking
Keywords (mandatory)

Supplementary Requirements
Quality Assurance
Annexes and Appendixes
References
Summary of Changes

† Test methods included shall contain the mandatory headings shown in Section A1, except for title and designation.

B2.2 Subject headings in boldface type shall precede each section to orient the reader. Substitute text divisions and number in accordance with the Use of the Modified Decimal Numbering System guide in Part D of this publication.

B3. Title (Mandatory)

B3.1 The title should be as concise as possible, but complete enough to identify the material, product, system, or service covered by the specification. Titles are used in lists, table of contents, and indexes, and it is most important that they be brief but inclusive. Use the singular form: “specification.”

B4. Designation and Year Date

B4.1 Designation (mandatory)—The ASTM designation, assigned by Headquarters on submittal for approval, consists of the following sequential parts:

B4.1.1 A letter designation denoting in general the classification according to material, product, system, or service:

A—Ferrous metals and products
B—Nonferrous metals and products
C—Cementitious, ceramic, concrete, and masonry materials
D—Miscellaneous materials and products
E—Miscellaneous subjects
F—End-use materials and products
G—Corrosion, deterioration, weathering, durability, and degradation of materials and products

B4.1.2 A sequential number following the letter designation (for example, Specification C150).

B4.2 *Year Date*: (for example, Specification C150-01):

B4.2.1 After the designation, a hyphen is followed by the last two numbers of the year of acceptance or of last revision. If the standard is revised again during the same year, this is indicated by adding an “a” for the second revision, “b” for the third revision, etc.

FORM OF ASTM SPECIFICATIONS

B4.2.2 The parenthetical phrase (“Reapproved 20____”) to designate the year of last reapproval of a standard, if applicable.

B4.2.3 For editorial changes that do not change the year designation, a note is inserted before the text to indicate the location and date of the change and a superscript epsilon (°) is added after the year designation. the epsilon designations and corresponding notes are numbered chronologically and are deleted upon occasion of the next revision or reapproval.

B4.3 Designation numbers of standards that have been discontinued are not reassigned.

B4.4 *SI Standards* (see Part H and Section G24).

B5. Scope (Mandatory)

B5.1 Include in this section information relating to the purpose of the specification. Concisely state the materials, products, systems, or services to which the specification applies and any known limitations. Include, where applicable, the intended use of the specification. Do not include references to trademarks.

B5.2 Include in this section the system of units to be used in referee decisions.

B5.3 Include in this section any caveats required by ASTM policy such as *safety hazards* (see F2.1) and *fire hazards* (see F2.2) if one or more test methods are detailed other than by reference.

B5.4 For standards developed for reference in model (building) codes, include the following statement:

The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

B6. Referenced Documents

B6.1 List in alphanumeric sequence the designation and complete title all documents referenced within the standard. Refer to Section A6 for further information.

B6.2 Provide footnotes to this section to indicate the sources of these documents. When ASTM standards are referenced later in the text, use only the type of standard (that is, specifica-

tion, test method, practice, classification, guide, terminology, etc.) and the designation letter and number (for example, Test Method D1310).

B6.3 Do not include the year date when designating referenced documents unless there is a technical reason for requiring a particular revision.

B6.4 When listing referenced adjuncts, provide a brief description in this section, and a footnote of the availability. (For more specific information on adjuncts, refer to Section B29).

B7. Terminology

B7.1 See Section A7.

B8. Classification

B8.1 When more than one material, product, or system is specified, they may be separated first by *types*, which are distinguished by Roman numerals. This first subdivision shall be based upon some major property, composition, or application of the item. Designate further subdivision by *grades* according to some pertinent property or properties and identify by Arabic numbers. If necessary, make additional division into *classes*, identified by capital letters.

B8.2 The precedence of type, grade, and class, as well as the method of designation, is the ASTM preferred style, and it shall be used in the absence of any established preference.

B8.3 When a type, grade, or class has been deleted, do not use this designation again, to avoid confusion with earlier specifications. If new designations are used, they shall be of different format and preferably followed (for a limited time) by the previous designation in parentheses.

B9. Ordering Information (See also Section B25)

B9.1 When the specification covers options for purchase, such as various types, grades, classes, alloys, sizes, and mass, the purchase order or inquiry should state which particular types, alloys, sizes are desired.

B9.2 A listing of each such optional feature, together with a reference to the applicable section of the specification, will be of assistance in the

FORM OF ASTM SPECIFICATIONS

wording of orders. After the attention of the purchaser is directed to all of the options in the specification, his attention might be directed to what would be furnished by the supplier if the purchaser fails to specify one or more of the options.

B9.3 It is recommended that this section be included in all specifications as a checklist of items to be included in a purchase order or contract. If this list contains any ASTM designation (including referenced documents), it is desirable to specify “year date(s)” to avoid misunderstandings between contractual parties.

B9.4 When citing a combined standard, indicate the system of units to be applied. For example:

X.X This material/product shall conform to the requirements stated in SI units of Specification A36/A36M.

B10. Materials and Manufacture

B10.1 General requirements regarding the materials and method of manufacture to be used may be included when deemed helpful to the user of the standard, such as the open-hearth, electric-furnace, or basic-oxygen bessemer processes generally specified for steel products. When the material, product, or system specified is made from two or more materials or products, this section should state briefly the general requirements of the materials or products to be used and the process to be followed in manufacture, including items such as the nature and character of any alloys, fillers, saturants, antioxidants, coatings, and plasticizers.

B11. Chemical Composition

B11.1 When necessary, detailed requirements shall be given as to chemical composition and other chemical characteristics for the material, product, or system. Frequently these are presented in tabular form. It is most important that the following information be clearly indicated: (1) name of each constituent specified, (2) whether the requirement is a maximum, minimum, or range, (3) whether an allowance for measurement error is incorporated in these limits, (4) the units applicable, (5) references to notes or footnotes when necessary for further clarification, and (6) appropriate analytical methodology.

B11.2 The sequence of items specified shall be consistent within a related group of specifications.

B11.3 The preferred introduction for this section is: “The material shall conform to the requirements prescribed in Table 1.”

B11.4 *Limits on Nonspecified Elements*— It is suggested that the following statement be added to tables of chemical requirements as applicable to replace the requirements and statements presently being used regarding nonspecified elements: “By agreement between purchaser and supplier, analysis may be required and limits established for elements or compounds not specified in the table of chemical composition” (see also Section B24).

B12. Other Requirements

B12.1 When necessary, detailed requirements should be given as to characteristics to which the material, product, or system shall conform. Frequently these are presented in tabular form. It is most important that the following information be clearly indicated: (1) name of each property or requirements, (2) whether the requirement is a maximum, minimum, or range, (3) whether an allowance for measurement error is incorporated in these limits, (4) the units applicable, (5) references to notes or footnotes when necessary for further clarification, and (6) appropriate test methodology.

B12.2 *Physical Properties*— Present the requirements for electrical, thermal, optical, and similar properties in this section, usually in tabular form.

B12.3 *Mechanical Properties*— Present the requirements for tensile strength, yield strength, elongation, and similar properties in this section.

B12.4 *Performance Requirements*— Include functional, environmental, and similar requirements in this section when necessary.

B12.5 *Other Requirements*— Include additional requirements as needed.

B12.6 In preparing a specification it is essential to make sure that there is a test procedure for determining conformance for each requirement. These shall be listed in the specification (see Section B18).

FORM OF ASTM SPECIFICATIONS

B12.7 When it is not feasible to tabular the requirements, separate text division may be used to specify the various requirements. These shall be given appropriate headings consistent with the subject matter included.

B13. Dimensions, Mass, and Permissible Variations

B13.1 Details as to the standard shapes, mass, and size ranges usually are presented best in tabular form with brief reference in the text. Separate sections may be necessary with individual tables. The tables shall clearly indicate where the various size ranges are divided; for example, ranges from 0 to 250 mm, 250 to 500 mm, 500 to 750 mm shall be more properly stated as 250 mm and under, over 250 to 500 mm, inclusive; over 500 to 750 mm, inclusive, etc.

B13.2 The permissible variations in dimensions, mass, etc., may be included in the same tables with the nominal sizes. It shall be made clear whether the tolerances specified are both plus and minus or apply in only one direction.

B14. Workmanship, Finish, and Appearance

B14.1 Requirements covering the workmanship and finish include such general requirements as the type of finish and general appearance or color, uniform quality and tempers (for metals), and whether the item is clean, sound, free of scale and injurious defects. To avoid misunderstanding, these should be spelled out clearly. Provisions for removal or repair of minor surface imperfections that are not considered cause for rejection should be stated.

B14.2 For products such as pipe and tile it is usually customary to specify absence of defects such as fractures, large or deep cracks, checks, blisters, laminations, and surface roughness. The finish and shape of the ends also should be specified.

B15. Sampling

B15.1 If a specification applies to a unit of product or material such as a piece of cloth, a coil of wire, a section of plastic pipe, or a heat of steel, from which specimens are to be taken for testing, the procedure for obtaining these specimens shall be described.

B15.2 If a specification pertains to individual units of a lot and sampling inspection is likely to be the normal procedure, it is desirable for the specification to reference or include in a supplementary section a sampling procedure for determining acceptability of the lot (see Section B25).

NOTE B2—In a single sampling plan by attributes the acceptability of a lot will be determined by the number of units of product in the sample that do not conform to the specifications. The acceptable quality level (AQL) and limiting quality level (LQL) of an acceptance sampling plan, expressed as percentages of the units nonconforming, are characteristics of the sampling plan and are not to be viewed as product specifications.

B15.3 If a specification pertains to the mean of a lot, in particular to the mean of a lot of bulk material such as cement or pig iron, the procedure for sampling the lot or the formation of sample test units, or both, shall be described or referenced. The criterion for determining conformance of the lot shall be specifically stated.

B15.4 If a specification applies to a lot of bulk material, state the number of increments required to create a sample test unit and the number of test units to be taken to determine conformance of the lot.

B15.5 The minimum amount of material required to carry out conveniently all the tests in the specification should be indicated for the convenience of the user of the specification.

B16. Number of Tests and Retests

B16.1 State the number of test units and the number of test specimens or subunits that are required to determine conformance of the material or product to the specifications. In the sampling of a lot of bulk material, state the size of the sample in terms of the number of primary (first stage) sampling units that is required to determine conformance to the specifications.

NOTE B3—When a specification pertains to several different properties of a material to be determined by a variety of test methods, a test unit is defined as a unit or portion of the material that is sufficient to obtain a single, adequate set of test results for all properties to be measured.

B16.2 If a specification allows retesting in cases where the material or product fails to pass

FORM OF ASTM SPECIFICATIONS

the specification, state the rules for the retesting and the conditions under which the retesting would be permitted.

B17. Specimen Preparation

B17.1 Where special preparation is required, as for example in specifications for molding materials, this section shall be included.

B17.2 Refer to a standard test method if possible.

B17.3 If no standard test method exists, include sufficient detail in the specification to assure acceptable reproducibility of test results.

B17.4 State that specimens are to be prepared in accordance with the recommendations of the manufacturer only if neither B17.2 nor B17.3 is feasible.

B18. Test Methods

B18.1 List standard test methods for measurement of all requirements of a specification. Refer to the ASTM test methods used in testing the material to determine conformance with the specification. This includes sampling, chemical analysis, mechanical, electrical, thermal, optical, and other testing procedures. When alternative procedures are given in test methods, it is important to state which particular procedure shall be used as the basis for the specification requirement.

B18.2 When there is no ASTM test method specified for a particular quality or property of a specified material, describe the test procedure to be followed in detail in the specification, following the Form of ASTM Test Methods (Part A of this publication). Include all mandatory information listed in A1.1 (title, scope, significance and use, hazards, procedure, precision and bias).

B18.3 Where a method of some other organization is being used and the committee has not approved the test as an ASTM test method, then it is preferable to describe the test in detail in the specification and to include a footnote reference to the original source. Appropriate copyright releases shall be obtained.

B18.4 State all procedures in the imperative mood.

B19. Inspection

B19.1 The following statement has been adopted by the Board of Directors to be used when there is a substantial disagreement between producers and users within a particular committee, resulting in a blockage of progress in the acceptance of new specifications or revisions to specifications:

Inspection of the material shall be agreed upon between the purchaser and the supplier as part of the purchase order or contract.

B19.2 Place any technical requirements on inspection such as sampling plan and physical or mechanical properties in other appropriate parts of the specification.

B20. Rejection and Rehearing

B20.1 The following statement serves as a guide to ASTM committees when there is need for a section on rejection and rehearing:

Material that fails to conform to the requirements of this specification may be rejected. Rejection should be reported to the producer or supplier promptly and in writing. In case of dissatisfaction with the results of the test, the producer or supplier may make claim for a rehearing.

B21. Certification

B21.1 A certification section may be included in the standard when in the judgment of the committee, technical considerations make this advisable. If a certification section is included, the certification shall include reference to the standard designation and year date.

B21.2 The following are suggested statements:

When specified in the purchase order or contract, the purchaser shall be furnished certification stating samples representing each lot have been tested and inspected as indicated in this specification and the requirements have been met. When specified in the purchase order or contract, a report of the test results shall be furnished. Test reports may be transmitted to the purchaser by electronic services. The content of the electronically transmitted document shall conform to any existing agreement between the purchaser and the seller.

B21.3 Upon the request of the purchaser in the purchase order or contract, the certification of an independent third party indicating conformance to the requirements of this specification may be considered.

FORM OF ASTM SPECIFICATIONS

B22. Product Marking

B22.1 It is customary to specify the information to be marked on the material or included on the package, or on a label or tag attached thereto. Such information typically may include the name, brand, or trademark of the manufacturer, quantity, size, weight, ASTM designation, or any other information that may be desired for a specific material. If an ASTM standard is specified, indicate "ASTM" and the designation number (for example, ASTM F2063) on the marking, when possible.

B23. Packaging and Package Marking

B23.1 When it is customary and desirable to package, box, crate, wrap, or otherwise protect the item during shipment and storage in accordance with a standard practice, it is customary to state the requirements.

B24. Keywords (Mandatory)

B24.1 In this section, identify the words, terms, or phrases that best represent the technical information presented in the standard. Select the keywords from the title and body of the document and include general, vernacular, and trade terms. These keywords will be used in the preparation of the ASTM Subject Index.

B24.2 Select three or more keywords that describe the names of tests, procedures, special materials, or the specific application(s) that will facilitate the identification and retrieval of the standard.

B24.3 All selected keywords shall be stand-alone terms; the type of standard, incomplete phrases, unattached adjectives, etc., shall not be used.

B25. Supplementary Requirements

B25.1 For some standards supplementary requirements may be specified. These should not include statements that would allow the lowering of minimum requirements of the standard (see B1.2). Usually these apply only when specified by the purchaser in the purchase order or contract. A statement to this effect shall appear in the

first paragraph of the Supplementary Requirements section. The following is a suggested statement relating to special requirements:

The following supplementary requirements shall apply only when specified by the purchaser in the purchase order or contract.

B25.2 Supplementary requirements shall appear separately in a Supplementary Requirements section.

B25.3 *Quality Assurance*— This requirement, if included, shall be qualified by the statement: "When specified in the purchase order or contract." Reference to a suitable document, such as ASTM International, ANSI, MIL, etc., may be made by agreement between the supplier and the purchaser.

B25.4 *Qualification*:

B25.4.1 Qualification to nongovernment standards shall be based on the same justification and operated under the same rules as qualification to military or federal specifications. The justification and rules are covered in the DoD 4120.3-M manual, Chapter 4. Briefly, qualification is justified when one or more of the following apply: (1) The time to conduct one of the tests exceeds 30 days, (2) conformance inspection will require special equipment, (3) specification covers life survival or emergency life-saving equipment. The committee preparing the specification that calls for qualification will be asked to show that: (1) there is no other practical way of obtaining evidence of the availability of products to meet the specification in a reasonable time independent of that acquisition and (2) two or more sources are available and willing to submit their products for qualification.

B25.4.2 When qualification is determined to be feasible and necessary, it shall be included in the Supplementary Requirements section with wording similar to:

Items furnished under this specification shall be products that are qualified for listing on the applicable qualified products list at the time set for opening of bids.

Qualification testing (as distinct from acceptance testing) shall be specifically identified with accept/reject criteria. A statement shall be made

FORM OF ASTM SPECIFICATIONS

concerning retention of qualification. This may either be a manufacturer's periodic self-certification, a periodic submission of test results, or a complete retest of the product. A statement similar to the following shall be included:

With respect to products requiring qualification, awards will be made only for products that are, at the time set for opening of bids, qualified for inclusion in Qualified Parts List (QPL No.) whether or not such products have actually been so listed by that date. The attention of the contractors is called to these requirements, and manufacturers are urged to arrange to have the products that they propose to offer tested for qualification in order that they may be eligible to be awarded contracts or purchase orders for the products covered by this specification. The activity responsible for the Qualified Parts List is (insert name and address of qualifying organization(s)) and information pertaining to qualifications of parts may be obtained from that activity.

B26. Annexes and Appendixes

B26.1 Additional information may be included in one or more annexes or appendixes to the specification.

B26.2 The words "Mandatory Information" shall be included directly under the title of annexes and the words "Nonmandatory Information" shall be included directly under the title of appendixes.

B26.3 *Annexes*— Include in annexes any detailed information such as that on apparatus or materials that is a mandatory part of the specification but too lengthy for inclusion in the main text. Annexes shall precede appendixes.

B26.4 *Appendixes*— There are times when it is desirable to include in a specification additional information for general use and guidance, but which does not constitute a mandatory part of the specification. It is appropriate to include such informational material in appendixes. Examples of material that has been included in such appendixes are tables showing approximate relationship between tensile strength and hardness, list of preferred thickness of plate, sheet, and strip reproduced from other documents, tables of standard mass and standard sizes, information on typical applications of the material covered, and information on typical physical properties whose definite values are not prescribed in the specification.

B27. References

B27.1 Include only references to publications supporting or providing needed supplementary information. Historical and acknowledgment references are not recommended. If there are five or more references, list them in an unnumbered section at the end of the specification in the order in which they appear in the text. If there are fewer than five literature references, use footnotes (see Section G21).

B28. Footnotes

B28.1 *General*— Footnotes referenced in the text are intended only for reference and shall never include any information or instructions necessary for the proper application of the specification. Table footnotes are a part of the table. Use consecutive superior numerals for reference to footnotes except in connection with tables, in which case use italic capital letters.

B28.2 *Committee Jurisdiction and History*— Footnote 1 shall include in the first paragraph the committee having jurisdiction and, where the committee so requests, the subcommittee. The second paragraph shall include history information as follows: (1) approval date of latest revision, (2) month and year of publication, (3) designation and year of original issue, (4) designation and year of previous issue, and (5) information as to the other standards that may have been replaced by the standard, year of redesignation, etc.

B28.3 *Literature References*— Use footnotes for references if there are fewer than five. For five or more see Section B27, observing the limitations noted therein. Also see Section G21.

B28.4 *Sources of Apparatus*— Where apparatus may be special or not readily available from more than one source, the source may be referenced. (However, see Section F4 for detailed rules.)

B28.5 *Research Reports*— Reference in a footnote the availability of research reports (see Section B31).

B29. Notes

B29.1 Notes in the text shall not include mandatory requirements. Notes are intended to

FORM OF ASTM SPECIFICATIONS

set explanatory material apart from the text itself, either for emphasis or for offering informative suggestions not properly part of the standard. Clarification of the description of required apparatus or procedure and modifications required or permitted in certain cases belong in the text itself. If inclusion of the contents yields a different result, then that information is considered mandatory for the performance of the standard and shall be located in the text. Notes may be preferable for detailed description of auxiliary procedures (for example, correction of barometric pressure in a test method not primarily concerned with pressure). Table notes are a part of the table and are mandatory provisions.

B29.2 Notes appearing in a given standard shall be numbered in sequence and should appear at the end of the paragraph to which they pertain. If it is necessary to refer to a text note in connection with a specific word or phrase in the text, that word or phrase should be followed by a reference to the note, "NOTE 1"), etc.

B29.3 Notes in the text are preferred for the following:

B29.3.1 To refer to editorial changes made in the text.

B29.3.2 To refer to similar or companion ASTM standards.

B29.3.3 Description, if included under "Scope," of experimental means for recognizing cases where the method is not applicable to the material under test.

B29.3.4 Description of additional (not alternative) apparatus, materials, procedures, or calculations that are not actually required; or description of merely recommended forms of construction of required apparatus.

B29.3.5 Explanation, if needed, of the reasons for a certain requirement or direction. If brief, include in the text rather than as a note.

B29.4 *Patent Disclaimer of Liability*— See Section 15 of the [Regulations Governing ASTM Technical Committees](#). This note, quoted in F3.2 and not numbered, is generally placed at the end of the standard. Questions regarding the applicability of this section should be referred to the Staff Manager of your committee.

B29.5 *General Statement of ASTM Policy*— This note, quoted in F2.3 and not numbered, is generally placed at the end of the standard after the note on Patent Disclaimer of Liability.

B30. Adjuncts

B30.1 Occasionally it is not practicable to publish as an integral part of the standard, because of its nature, material that may be required for use of the standard. Such material is published as an adjunct.

B30.2 Include a description of the adjunct in the text of the standard. If appropriate, include a figure (illustration) of the adjunct.

B30.3 When adjunct material is indicated, it shall be made available at the time of publication of the standard.

B30.4 Include all referenced adjuncts in the Referenced Documents section (see Section A6).

B30.5 Examples of adjuncts are as follows:

B30.5.1 Comparison standards such as the copper strip corrosion standards for Test Method D130 (lithograph aluminum strips),

B30.5.2 Charts such as the viscosity-temperature charts for liquid petroleum for D341,

B30.5.3 Reference radiographs such as E155 or reference photographs, such as E125,

B30.5.4 Technical data such as the twelve volumes of D1250, Petroleum Measurement Tables, and

B30.5.5 Drawings such as detailed drawings for the construction of the smoke chamber in Test Method D2843.

B31. Research Reports

B31.1 Research reports, which include historical or round-robin information, or other data, shall be sent to Headquarters, where they are given a file number and may be obtained upon request. Such reports may be referenced in a footnote (see B28.5). If the specification contains a detailed test method, the requirements in Section A29 apply.

B32. Rationale (Commentary)

B32.1 The inclusion of a rationale (commentary) section in ASTM standards is encouraged to ensure that brief and concise documentation is available to the user of the standard and to

FORM OF ASTM SPECIFICATIONS

provide traceability and clarification of past actions. This documentation might include: (1) a brief history of the development of a new standard or revision to an existing standard including when and why the effort was initiated, (2) reasons and justification for requirements, (3) documentation of factors considered, and (4) listing of technical sources and literature.

B32.2 If included, this information shall appear in an appendix of the standard.

B32.3 Examples of standards that include sections on rationale:

E84, Test Method for Surface Burning Characteristics of Building Materials

F746, Test Method for Pitting or Crevice Corrosion of Metallic Surgical Implant Materials

F763, Practice for Short-Term Screening of Implant Materials

B33. Part Numbering

B33.1 *General*— Part-numbering systems may be included in an ASTM specification. The part-numbering system shall be placed in the appendix, shall be called out “when specified” as a supplementary requirement, and shall be referenced to appropriately under either “product marking,” “packaging and package marking,” or both places.

B33.2 *When Used for DOD Procurement:*

B33.2.1 The inclusion of a part-numbering system should be considered by technical committees when preparing specifications. Although it is a committee decision whether or not to include part numbering, ASTM International encourages such inclusion in specifications to make them more readily usable directly in procurement and supply applications.

B33.2.2 Part numbers shall be kept short and shall not exceed 15 characters. Part numbering shall be uniform for all parts covered by the same specifications; uniformity is also preferred for all part numbers within the same group of closely related items.

B33.3 *Criteria for Inclusion of Part Numbers:*

B33.3.1 In development of standards that embrace end products, every attempt should be made to define all product variables so as to enable one product to be positively distinguished

from another (from both an engineering and stocking viewpoint). Each product so covered shall be assigned a part number that:

- Is uniquely identifying.
- Includes the document (standard) number.
- Does not exceed 15 characters including dashes, slashes, spaces, etc.
- Does not include the letters “I,” “O,” “Q,” “S,” “X,” and “Z.”
- Does not change when the document is changed in a manner that does not affect interchangeability.
- Does not change when the product is modified so as to not be interchangeable. (In such instances, appropriate usage guidance will be provided if appropriate.)

B33.3.2 All standards that include part numbers shall contain a five-digit numerical manufacturers’ code as assigned by the U.S. Government under the Federal Cataloging Program. (See Fig. B1.)

B33.3.3 An example of a part-numbering system appears in ASTM Specification F1667, for Driven Fasteners: Nails, Spikes, and Staples.

B34. Summary of Changes

B34.1 If the committee chooses to provide a Summary of Changes, place this unnumbered section at the end of the standard and begin with the following introductory paragraph:

Committee XXX has identified the location of selected changes to this standard since the last issue (insert designation and year date) that may impact the use of this standard.

B34.2 An asterisk will appear after the Scope (**Scope***) with the following wording at the bottom of the first page:

***A Summary of Changes section appears at the end of this standard.**

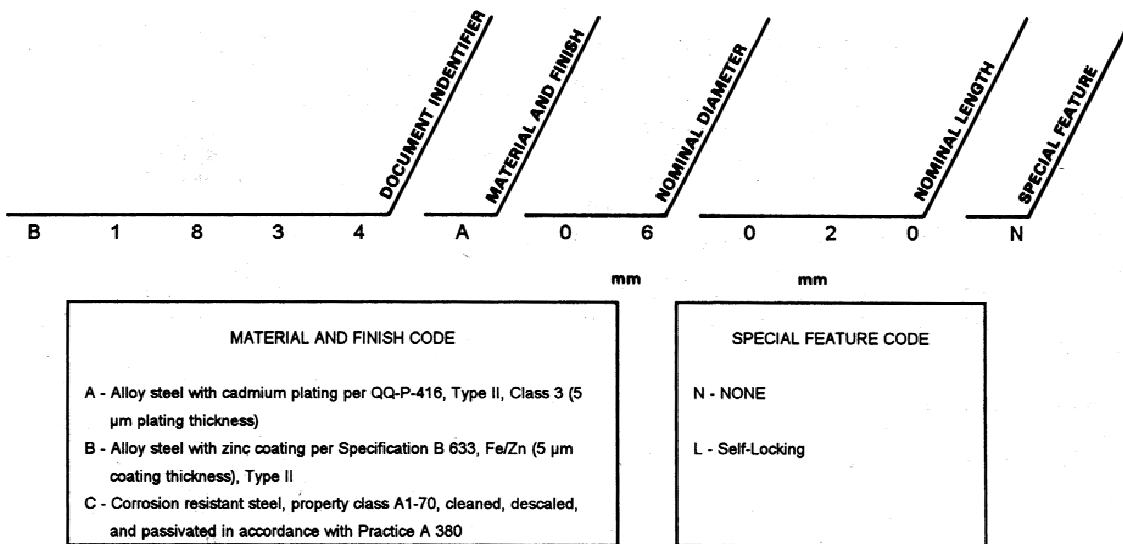
B34.3 Next list, by section or subsection, changes made since the last issue that may impact the use of the standard. For standards that have undergone multiple revisions in a short period of time, keep the Summary of Changes in the

FORM OF ASTM SPECIFICATIONS

standard for 18 months. This will ensure that all changes from one publication of the Annual Book of ASTM Standards to the next are recorded. Brief descriptions of the changes and reasons for the changes may be included. If desired, a more extensive description of reasons for the changes should be placed in the appendix.

B34.4 An example of the list of changes is:

- (1) Deleted Section 5 and renumbered subsequent sections.
- (2) Updated precision statement in Section 10 to reflect the results of a recent interlaboratory study.
- (3) Revised hardness requirements in Table 2.
- (4) Revised Section 14 on Product Marking.



Example: B1834A06020N indicates a Screw Cap, Hexagon Socket Button Head, SI, made of Cadmium Plated Alloy Steel, 6 mm in diameter, 20 mm in length, and no special feature

FIG. B1 Part Numbering System Covering Standard Items Used by U.S. Government

PART C

FORM OF OTHER TYPES OF ASTM STANDARDS

INTRODUCTION

In addition to test methods and specifications, ASTM standards take other forms, including the following:

Classifications	Reference Radiographs
Practices	Reference Photographs
Guides	Tables
Terminology or Definitions (see Part E)	Charts

As a committee attempts to develop a standard, the question of differentiation between a practice and a guide may arise. In general, a practice underscores a general usage principle whereas a guide suggests an approach. A standard practice connotes accepted procedures for the performance of a given task. Refer to definitions given on p. vii. A guide may propose a series of options or instructions that offer direction without recommending a definite course of action. The purpose of this type of standard is to offer guidance based on a consensus of viewpoints but not to establish a standard practice to follow in all cases. A guide is intended to increase the awareness of the user concerning available techniques in a given subject area, while providing information from which subsequent testing programs can be derived.

Regarding reference radiographs, reference photographs, tables, and charts, there are relatively few subject headings, and the form of the standard is left to the jurisdiction of the sponsoring committee. The first two types listed in the introduction to Part C, however, are most common and are given greater treatment below.

Special instructions with respect to the legal aspects are included in Part F and shall be followed in writing any standard. These include such matters as contractual items, caveat statements, patents, and fire standards. Assistance on development of fire standards is available from Committee E05. The policies contained in Part F are approved by and are under the jurisdiction of the ASTM Board of Directors.

When a standard is being developed, the costs associated with its development and subsequent use generally should be considered. The prime objective should be the optimum use of resources to achieve satisfactory definition of the product or service. However, it should be noted that when the standard relates to the safety of persons, cost considerations are likely to become much less important than when attributes of materials or products are involved. Some standards, such as a definition, impose no cost on the user; others that include numerous and extensive requirements can entail significant expense to users of the standard. The requirements to be included should, therefore, be those that are technically relevant and yield benefits commensurate with the cost of their determination.

Cost effectiveness statements or rationale may be included within a standard if appropriate, usually in an appendix.

CLASSIFICATIONS

C1. Description

C1.1 “A classification is a systematic arrangement or division of materials, products,

systems, or services into groups based on similar characteristics such as origin, composition, properties, or use.”¹

¹From [Regulations Governing ASTM Technical Committees](#).

CLASSIFICATIONS

C1.2 Classifications provide a time- and space-saving shorthand for specifying the above description.

C1.3 Classifications may be defined by each committee differently because of the unique nature of that committee. A collection or grouping of definitions to one committee may be termed a classification while still another committee may group objects or properties in a classification.

C2. Subject Headings of Text

C2.1 The following is the sequence for the text of ASTM classifications. Headings are those most generally used but may not be all-inclusive. It may be necessary to include other headings for specialized subjects. The headings identified as “mandatory” are required. Other headings shall be included when the subject matter is pertinent to the document under development; in which case, all instructions and guidance for that particular section shall be followed. For example, if the standard does not contain reference to any standard documents within the text, it is not required to include a section on Referenced Documents. If, however, specific hazards are cited throughout the text, then the section on Hazards (see Section A13) shall be followed. Not all of these headings may be required for a particular standard. The use of footnotes and notes shall follow Sections A26 and A27 respectively. Additional headings that are included to cover specialized subjects should appear in the most appropriate place and sequence depending on their relation to the sections below.

Title (mandatory)
Designation (mandatory)
Scope (mandatory)
Referenced Documents
Terminology
Significance and Use (mandatory)
Basis of Classification (mandatory)
Test Methods and Retest
Keywords (mandatory)
Annexes and Appendixes
Summary of Changes

C3. Title (Mandatory)

C3.1 The title of a classification standard should be concise, but complete enough to iden-

tify the nature of the basis for classification, for specific materials, systems, services, and products.

C4. Designation (Mandatory)

C4.1 The ASTM designation is assigned by Headquarters on submittal for approval. Refer to Sections A3 or B4 for sequential parts of numbering.

C5. Scope (Mandatory)

C5.1 Include in this section information relating to the purpose of the classification. Concisely state what characteristics have been classified and the materials, products, systems, or services to which the classification applies. Where applicable state any limitations to the use of the classification.

C5.2 Include in this section the system of units to be used in referee decisions.

C5.3 Include, where applicable, comparisons of the classification to other similar classifications.

C6. Referenced Documents

C6.1 List here in alphanumeric sequence the designation number and complete title of all documents referenced within the classification. Refer to Section A6 for further information.

C7. Terminology

C7.1 See Section A7.

C8. Significance and Use (Mandatory)

C8.1 Include in this section information relating to the relevance of the classification. State how the classification is used and who would typically use it.

C9. Basis of Classification (Mandatory)

C9.1 The basis of classification is in fact the most important portion of the document. This heading sets up categories in which groupings are made. For example, ASTM Classification D388,

PRACTICES AND GUIDES

of Coals by Rank (Vol 05.06) defines classification of higher rank coals according to fixed carbon on a dry basis while lower rank coals are classed according to caloric value on the moist basis.

C10. Test Methods and Retest

C10.1 Properties enumerated in a classification may be determined in accordance with specific test methods. These methods should be referenced in this portion of the document.

C10.2 Because of variability resulting from sampling and a lack of satisfactory reproducibility, and in instances when the first test results do not conform to the requirements prescribed in this classification, then a retest option may be provided.

C11. Keywords (Mandatory)

C11.1 In this section, identify the words, terms, or phrases that best represent the technical information presented in the standard. Select the keywords from the title and body of the document and include general, vernacular, and trade terms. These keywords will be used in the preparation of the ASTM Subject Index.

C11.2 Select three or more keywords that describe the names of tests, procedures, special materials, or the specific application(s) that will facilitate the identification and retrieval of the standard.

C11.3 All selected keywords shall be stand-alone terms; the type of standard, incomplete phrases, unattached adjectives, etc., shall not be used.

C12. Annexes and Appendixes

C12.1 Supplementary information is provided herein to aid in understanding and using the standard.

C12.2 Annexes (see A24.3).

C12.3 Appendixes (see A24.4).

C13. Examples

C13.1 Examples of classifications are:

D388 Classification of Coals by Rank

D3475 Classification of Child-Resistant Packages

C14. Summary of Changes

C14.1 If the committee chooses to provide a Summary of Changes, place this unnumbered section at the end of the standard and begin with the following introductory paragraph:

Committee XXX has identified the location of selected changes to this standard since the last issue (insert designation and year date) that may impact the use of this standard.

C14.2 Next list, by section or subsection, changes made since the last issue that may impact the use of the standard. Brief descriptions of the changes and reasons for the changes may be included.

C14.3 An example of the list of changes is:

- (1) Deleted Section 5 and renumbered subsequent sections.
- (2) Updated precision statement in Section 10 to reflect the results of a recent interlaboratory study.
- (3) Revised hardness requirements in Table 2.
- (4) Revised Section 14 on Product Marking.

PRACTICES AND GUIDES

C15. Description

C15.1 A standard practice is an accepted procedure for the performance of one or more operations or functions. In certain cases practices may include one or more test methods necessary for full use of the practice. Examples of practices include selection, preparation, application, inspection, necessary precautions for use or dis-

posal, installation, maintenance, and operation of testing apparatus.

C15.2 A standard guide is a compendium of information or series of options that does not recommend a specific course of action. Guides are intended to increase the awareness of information and approaches in a given subject area. Guides may propose a series of options or

PRACTICES AND GUIDES

instructions that offer direction without recommending a definite course of action. The purpose of this type of standard is to offer guidance based on a consensus of viewpoints but not to establish a standard practice to follow in all cases.

C16. Subject Headings of Text

C16.1 The following is the sequence for the text of ASTM practices and guides. Headings are those most generally used but may not be all-inclusive. It may be necessary to include other headings for specialized subjects. The headings identified as “mandatory” are required. Other headings shall be included when the subject matter is pertinent to the document under development; in which case, all instructions and guidance for that particular section shall be followed. For example, if the standard does not contain reference to any standard documents within the text, it is not required to include a section on Referenced Documents. If, however, specific hazards are cited throughout the text, then the section on Hazards (see Section A13) shall be followed. The use of footnotes and notes shall follow Sections A26 and A27 respectively.

Title (mandatory)
Designation (mandatory)
Scope (mandatory)
Referenced Documents
Terminology
Summary of Practice
Significance and Use (mandatory)
Reagents
Procedure
† Test Methods
Report
Keywords (mandatory)
Annexes and Appendixes
Summary of Changes

†Test Methods included shall contain the mandatory headings included in Section A1, except for title and designation.

C16.2 Not all of these headings may be required for a particular standard. Additional headings that are included to cover specialized subjects should appear in the most appropriate place and sequence depending on their relation to the sections listed in C16.1.

C17. Title (Mandatory)

C17.1 The title should be concise but complete enough to identify the nature of the practice.

It should identify the subject of application and should be distinguishable from similar titles (see A2.1 as it applies to titles of test methods).

C18. Designation (Mandatory)

C18.1 The ASTM designation is assigned by Headquarters on submittal for approval. Refer to Sections A3 and B4 for sequential parts of numbering.

C19. Scope (Mandatory)

C19.1 Include in this section information relating to the purpose of the practice or guide and to what it applies. Clearly state any limitations of the practice or guide.

C19.2 Include in this section the system of units to be used in referee decisions.

C19.3 Include in this section any caveats required by ASTM policy such as *safety hazards* (see F2.1) and *fire hazards* (see F2.2).

C19.4 For standards developed for reference in model (building) codes, include the following statement:

The text of this standard references notes and footnotes which provide explanatory material. These notes and footnotes (excluding those in tables and figures) shall not be considered as requirements of the standard.

C20. Referenced Documents

C20.1 List here in alphanumeric sequence the designation number and complete title of all documents referenced within the practice (or guide). Refer to Section A6 for further information.

C21. Terminology

C21.1 See Section A7 and Part E.

C22. Summary of Practice

C22.1 Include here a brief outline of the practice, describing its essential features without the details that are a necessary part of the complete statement of procedure and sequence. If desired, a brief statement of the principle of the practice may be given.

PRACTICES AND GUIDES

C23. Significance and Use (Mandatory)

C23.1 Include in this section information that explains the relevance and meaning of the practice (or guide). State the practical uses for the practice and how it is typically employed. Avoid repetition of information included in the Scope (see Section C19).

C23.2 Include separately any appropriate comments on limitations of the practice. Indicate any means of recognizing cases where the practice may not be applicable.

C23.3 Include, where applicable, comparisons of the practice (or guide) to other similar procedures.

C24. Reagents

C24.1 See Section A12.

C25. Procedure

C25.1 Include in the procedure detailed directions for performing the task outlined in the practice.

C25.2 In some cases, to aid in clarity, a diagrammatic, photographic, or schematic may be of value to the user of the practice. These shall be supplied to the ASTM editorial staff as originals. An excellent example of this type of approach is illustrated in ASTM Practice D2855, for Making Solvent-Cemented Joints with Poly-(Vinyl Chloride) (PVC) Pipe and Fittings.

C26. Test Methods

C26.1 List standard test methods for measurement of all requirements of practices or guides. Refer to the ASTM test methods used in testing the material to determine conformance with the practice or guide. This includes sampling, chemical analysis, mechanical, electrical, thermal, optical, and other testing procedures. When alternative procedures are given in test methods, it is important to state which particular procedure shall be used as the basis for the practice or guide requirement.

C26.1.1 Examples of standard practices that include multiple test methods:

D4169 Practice for Performance Testing of Shipping Containers

E679 Practice for Determination of Odor and Taste Thresholds by a Forced-Choice Ascending Concentration Series Method of Limits

E795 Practices for Mounting Test Specimens During Sound Absorption Tests

C26.2 When there is no ASTM test method specified for a particular quality or property of a specified material, describe the test procedure to be followed in detail in the practice (or guide), following the Form of ASTM Test Methods (Part A of this publication). Include all mandatory information listed in A1.1 (title, scope, significance and use, hazards, procedure, precision and bias).

C26.3 Where a method of some other organization is being used and the committee has not approved the test as an ASTM test method, then it is preferable to describe the test in detail in the practice or guide and to include a footnote reference to the original source. Obtain appropriate copyright releases.

C26.4 State all procedures in the imperative mood.

C27. Report

C27.1 Include detailed information as to calculating, interpreting, and reporting results in this section.

C27.2 Depending upon the nature of the practice, an entire section may, by necessity, be devoted to calculation or interpretation of results, or both.

C27.3 When a practice permits variance in conditions under which the standard practice has been performed, these conditions should become part of the report.

C28. Keywords (Mandatory)

C28.1 In this section, identify the words, terms, or phrases that best represent the technical information presented in the standard. Select the keywords from the title and body of the document and include general, vernacular, and trade terms. These keywords will be used in the preparation of the ASTM Subject Index.

C28.2 Select three or more keywords that describe the names of tests, procedures, special

PRACTICES AND GUIDES

materials, or the specific application(s) that will facilitate the identification and retrieval of the standard.

C28.3 All selected keywords shall be stand-alone terms; the type of standard, incomplete phrases, unattached adjectives, etc., shall not be used.

C29. Annexes and Appendixes

C29.1 Supplementary information is provided herein to aid in understanding and utilizing the standard.

C29.2 Annexes (see A24.3).

C29.3 Appendixes (see A24.4).

C30. Rationale

C30.1 The inclusion of a rationale (commentary) section in ASTM standards is encouraged to ensure that brief and concise documentation is available to the user of the standard and to provide traceability and clarification of past actions. This documentation might include: (1) a brief history of the development of a new standard or revision to an existing standard including when and why the effort was initiated, (2) reasons and justification for requirements, (3) documentation of factors considered, and (4) listing of technical sources and literature.

C30.2 If included, this information shall appear in an appendix of the standard.

C30.3 Examples of standards that include sections on rationale:

E84 Test Method for Surface Burning Characteristics of Building Materials

F746 Test Method for Pitting or Crevice Corrosion of Metallic Surgical Implant Materials

F763 Practice for Short-Term Screening of Implant Materials

C31. Summary of Changes

C31.1 If the committee chooses to provide a Summary of Changes, place this unnumbered section at the end of the standard and begin with the following introductory paragraph:

Committee XXX has identified the location of selected changes to this standard since the last issue (insert designation and year date) that may impact the use of this standard.

C31.2 An asterisk will appear after the Scope (Scope*) with the following wording at the bottom of the first page:

***A Summary of Changes section appears at the end of this standard.**

C31.3 Next list, by section or subsection, changes made since the last issue that may impact the use of the standard. For standards that have undergone multiple revisions in a short period of time, keep the Summary of Changes in the standard for 18 months. This will ensure that all changes from one publication of the Annual Book of ASTM Standards to the next are recorded. Brief descriptions of the changes and reasons for the changes may be included. If desired, a more extensive description of reasons for the changes should be placed in the appendix.

C31.4 An example of the list of changes is:

- (1) Deleted Section 5 and renumbered subsequent sections.
- (2) Updated precision statement in Section 10 to reflect the results of a recent interlaboratory study.
- (3) Revised hardness requirements in Table 2.
- (4) Revised Section 14 on Product Marking.

PART D

USE OF THE MODIFIED DECIMAL NUMBERING SYSTEM

INTRODUCTION

In recent years, “point” systems for numbering sections of a document have come into extensive use. Many national organizations, associations, societies, industrial concerns, and government agencies are using a Modified Decimal Numbering (MDN) System. MDN is also used by standardization organizations.

In 1963, ASTM International adopted the MDN System for ASTM standards. This guide has been prepared for the use of members who are drafting or revising standards. The object of the MDN System is to assign to each division in a text a unique number that shows the relationship of the specific section to all previous sections and gives a complete designation which does not require reference to previous sections or pages.

D1. Scope

D1.1 The Modified Decimal Numbering (MDN) System is designed primarily for numbering the text division in standards.

D1.2 The MDN System is also referred to as the “Point” System.

D2. Parts of a Standard

D2.1 All documents are considered to consist of several primary divisions called primary sections. A primary section may include one or more secondary sections. A secondary section may include one or more ternary sections which in turn may include one or more quaternary sections.

D2.2 The terms “primary section,” “secondary section,” “ternary section,” and “quaternary section” shall not be used in headings or references.

D2.3 References shall be made by referring to only the number when referring to secondary, ternary, and quaternary sections. Refer to primary sections as “Section 4” or “Sections 5 to 9.”

D2.4 Either of the generic words “section” or “division” may be used in correspondence or other communication, but shall not be used in references, other than primary, as directed in D2.2 and D2.3.

D3. Assignment of Numbers

D3.1 Number the primary sections of a standard serially, beginning with 1 or “Scope,” using as many numbers as required by the number of sections.

D3.2 Assign to the successive secondary sections of any primary section a two-part number consisting of the number used for the primary section followed by a decimal point and a consecutive number, beginning with 1, using as many numbers as required by the number of secondary sections. For example, if there are eleven secondary sections in the fifth section of a standard, designate these secondary sections 5.1, 5.2, 5.3 ... 5.9, 5.10, and 5.11.

D3.3 Assign to the successive ternary sections in a secondary section a three-part number consisting of the two-part number assigned to the secondary section followed by a decimal point and a consecutive number, beginning with 1, using as many numbers as required by the number of ternary sections. For example, if there are four ternary sections in secondary section 8.4, designate the ternary sections, 8.4.1, 8.4.2, 8.4.3, and 8.4.4.

D3.4 Assign to each of the successive quaternary sections in a ternary section a four-part number consisting of the three-part number assigned to the ternary section followed by a decimal point and a consecutive number, beginning with 1, using as many numbers as required by the number of quaternary sections. For

USE OF THE MODIFIED DECIMAL NUMBERING SYSTEM

example, if there are three quaternary sections in the second ternary section of secondary section 8.4, designate them 8.4.2.1, 8.4.2.2, and 8.4.2.3.

D3.5 There shall be no further subdivision beyond that allowed by the four-part number. The judicious use of unnumbered center headings may help in the adherence to this rule.

D4. Supplementary Requirements

D4.1 Designate each supplementary requirement by the letter “S” followed by a consecutive number, beginning with 1 for the first supplementary requirement.

D4.1.1 There shall be no decimal point between the “S” and the number.

D4.1.2 Do not renumber supplementary requirement designations once deleted.

D4.2 Designate primary, secondary, and ternary sections of each supplementary requirement as shown in D3.2, D3.3, and D3.4, respectively.

NOTE D1—Primary sections of a supplementary requirement, an annex, or an appendix are numbered the same as a secondary section of the main standard (with two-part numbers); secondary and ternary sections of a supplementary requirement, an annex, or an appendix are, therefore, numbered the same as ternary and quaternary sections (with three and four-part numbers), respectively, of the standard.

D4.3 No individual supplementary requirement shall be subdivided into more than three levels in accordance with D3.5.

D5. Literature References

D5.1 Where a document includes five or more literature references, list them in a separate unnumbered section at the end of the document, preceding annexes and appendixes. Assign a one-part number of each individual reference. See Section G21 of this publication.

D6. Annexes and Appendixes

D6.1 Separate annexes and appendixes from the main text with the centered headings ANNEX(ES) and APPENDIX(ES).

D6.2 Precede the title of each annex by the letter “A” followed by a number in consecutive order, beginning with 1 for the first annex (A1,

A2, A3, etc.) Precede the title of each appendix by the letter “X” followed by a number in consecutive order, beginning with 1 for the first appendix (X1, X2, X3, etc.)

D6.2.1 There shall be no decimal point between the “A” or “X” and the number.

D6.3 Designate primary, secondary, and ternary sections of each annex or appendix as shown in D3.2, D3.3, and D3.4, respectively (NOTE D1) (for example, A1.1, A1.1.1, and A1.1.1.1).

D6.4 No individual annex or appendix shall be subdivided into more than three levels in accordance with D3.5.

D7. Equations

D7.1 Equations should be numbered when two or more are included in the main text of the standard (see G16.6). Designate equations with consecutive arabic numbers beginning with 1. Number each equation in the order that it appears in the standard, regardless of the section number in which it is referenced.

D7.2 Designate equations in annexes and appendixes by the designation of the annex or appendix followed by consecutive numbers beginning with 1 (for example, Eq A1.1, A2.4, X3.2).

D8. Tables

D8.1 Assign consecutive arabic numbers to successive tables throughout the main text of the standard without regard to the number assigned to the section in which the table is referenced.

D8.2 Designate tables in annexes and appendixes by the designation of the annex or appendix followed by consecutive numbers beginning with 1 (for example, Table A1.1, A2.4, X3.2). Tables shall follow directly the appropriate annex or appendix.

D9. Figures

D9.1 Assign consecutive arabic numbers to successive figures throughout the main text of the standard without regard to the number assigned to the section in which the figure is referenced.

D9.2 Designate figures in annexes and appendixes by the designation of the annex or appendix followed by consecutive numbers

USE OF THE MODIFIED DECIMAL NUMBERING SYSTEM

beginning with 1 (for example, Fig. A1.1, A2.4, X3.2). Figures shall follow directly any tables of the appropriate annex or appendix.

D10. Text Notes

D10.1 Assign consecutive numbers to successive notes throughout the main text of the standard without regard to the number assigned to the section to which the note may refer. Notes shall be indicated by the word “NOTE” followed by the number.

D10.2 Designate notes in annexes by the letter “A” and in appendixes by the letter “X,” followed by consecutive numbers, beginning with 1.

D10.3 Designate notes pertaining to figures by consecutive numbers, beginning with 1 for the first note to each individual figure.

D11. Footnotes

D11.1 Assign consecutive numbers to successive footnotes throughout the standard, including supplementary requirements, annexes, and appendixes, without regard to the number assigned to the section in which the footnotes appears.

NOTE D2—Since Footnote 1 is required for sponsoring committee and year date of a standard, the first footnote referenced in the body of the text is Footnote 2.

D11.2 Designate footnotes to tables by consecutive letters, beginning with “A” for the first footnote to each individual table.

D11.3 Footnotes shall be referenced by superscript numbers, or, in the case of tables, by superscript italic capital letters.

D12. Combination of Systems

D12.1 Do not use a combination of the MDN System and other systems for designating secondary, ternary, and quaternary sections. For example, do not divide 8.4 into 8.4 (a), 8.4 (b), and 8.4 (c), rather than the 8.4.1, 8.4.2, and 8.4.3 as directed in D3.3.

D13. Omission of Numbers

D13.1 Do not assign MDN numbers to examples that are numbered serially throughout a document.

D13.2 Do not assign numbers to centered headings when used.

D14. Introductory Sections

D14.1 Where a standard has a preliminary section with a heading such as “Introduction” or “Foreword,” do not assign this section a number so that “Scope” shall always be designated with the one-part number “1” in accordance with D3.1.

D15. General Application

D15.1 Exercise care to distinguish between successive, parallel, and alternative sections and supplementary sections such as secondary, ternary, and quaternary sections. Only the latter three require the addition of another decimal point and number. Note also the manner of handling alternative clauses within a section. For example:

10. Procedure

10.1 Dry the specimen by either (1) heating at 105EC (221EF) for 2 h, or (2) holding the specimen in a conditioned atmosphere until dry to the touch.

Note that the above example is a single sentence and no further numbering breakdown is required.

10. Procedure

10.1 Make all tests on conditioned specimens using the procedure given in 10.3 and 10.4.

10.2 Calibrate the tension testing machine and see that the oven is at the specified temperature.

10.3 *Variable Frequency Procedure:*

10.3.1 Adjust the ...

10.3.2 Insert the ...

10.4 *Variable Tension Procedure:*

10.4.1 Start the ...

10.4.2 Clamp the ...

Note that in the above example, 10.3 and 10.4 are successive subdivisions of 10, not subdivisions of 10.1 or 10.2.

D16. Problems

D16.1 Any problems in the implementation of the MDN System in ASTM standards should be referred to the ASTM Director of Standards Publications for resolution.

PART E

TERMINOLOGY IN ASTM STANDARDS

INTRODUCTION

ASTM standard terminology is written to promote three objectives: (1) precise understanding and interpretation of ASTM standards, (2) standardization of terminology in standards, reports, and other technical writings, and (3) explanation of the meanings of technical terms for the benefit of those not conversant with them.

For terminology to be effective, it should be used consistently. It is, therefore, the responsibility of each technical committee to manage terminology usage in all standards for which it has jurisdiction to ensure that usage is consistent both within the committee and the Society. Part E provides guidance to technical committees and to those who review the work of technical committees regarding the principles of terminology.

E1. Terminology Management

E1.1 In ASTM International, technical committees are responsible for defining terminology within technical standards and for developing terminology as a type of standard. Terminology ensures precise interpretation of ASTM standards and explains technical terms for the benefit of users who are not conversant with the language of the standard. Use terminology that is clear, explicit, and not liable to misinterpretation when referred to in technical operations, commercial contracts, or legal proceedings.

E1.2 Terminology in a technical standard may include *definitions of terms* and *definitions of terms specific to a standard* and explanations of *symbols*, *abbreviations*, and *acronyms* that are necessary for the reader to understand that particular standard.

E1.3 All technical standards should contain a *Terminology* section that includes *definitions of terms* or *definitions of terms specific to a standard*, or both. Reference to a related terminology standard(s) can be sufficient for this section.

E1.4 All technical committees should develop and maintain a general terminology standard. Terminology, as a type of standard, is comprised of *definitions of terms* and explanations of *symbols*, *abbreviations*, and *acronyms* pertaining to the scope of a technical committee or a specialized field within the committee.

E2. Definitions of Terms and Definitions of Terms Specific to a Standard

E2.1 The distinction between *definitions of terms* and *definitions of terms specific to a standard* is related to the degree of application. If a term has a meaning more specialized than its commonly used language, is used by two or more subcommittees within a committee, or appears in several standards, it is labeled as a *definition of a term*. When the term is limited in application to the standard in which it needs to be defined, it is labeled as a *definition of a term specific to a standard*. *Definitions of Terms* and *Definitions of Terms Specific to a Standard* appear in separate subsections within the *Terminology* section of a technical standard. Since *definitions of terms specific to a standard* have limited application, they do not generally appear in a technical committee's general terminology standard.

E2.1.1 An example of a *definition* is:

X.x **dolly**, *n*—a low platform or structure mounted on wheels or casters, designed primarily for moving bulky loads for short distances. (Compare **pallet**)

D996

E2.1.2 An example of a *definition specific to a standard* is:

X.x **standard**, *n*—as used in ASTM International, a document that has been developed and established within the consensus principles of the Society and that meets the approval requirements of ASTM procedures and regulations.

Form and Style for ASTM Standards

TERMINOLOGY IN ASTM STANDARDS

E3. Guidelines for Writing Definitions of Terms and Definitions of Terms Specific to a Standard

E3.1 Use these guidelines when writing both *definition of terms* and *definitions of terms specific to a standard*.

E3.2 Prepare a definition when:

E3.2.1 Any term used in a standard is essential to the interpretation and application of the standard;

E3.2.2 A term used in a standard is not adequately defined in common language;

E3.2.3 Using qualitative adjectives and nouns that *could* be taken to denote or connote an *absolute, unqualified, or unconditional* property or capability; for example: *waterproof, stainless, unbreakable, vapor barrier, gas-free, flat, safe, rigid, pure*. Such qualitative adjectives and nouns shall not be used unless *actually used and defined* in their absolute sense;

E3.2.4 Describing a *quantitative determinable* property or capability that might cause misinterpretation or confusion; for example: *strong, high, accurate, clean*.

E3.3 Do not develop a definition when:

E3.3.1 A term is adequately defined in reference source material (print or electronic version), unless a definition is required for clarity;

E3.3.2 A term has a well-recognized authoritative meaning such as terms defined in the International System of Units (SI);

E3.3.3 A term is defined acceptably for the committee's purposes in the *ASTM Online Dictionary of Engineering Science and Technology* or the committee's terminology standard;

E3.3.4 A term that meets the committee's needs has been defined in a technical standard of another committee or subcommittee.

E4. Form of a Definition

E4.1 Write *definitions of terms* and *definitions specific to a standard* in the dictionary-definition form. Include term, part of speech, definition, and, when applicable, a delimiting phrase (see E5.5).

E4.2 Describe the essential characteristics of the term. Keep it simple. Do not include irrelevant details such as how things are made, used, or measured.

E4.3 State the definition without repeating the term defined. Use language that is understandable to non-experts.

E4.4 Complete the definition in one sentence. If two or more phrases are needed to state the meaning, connect them with semicolons. Include any necessary supplementary information as a Discussion.

E4.5 The term and its elements should appear in the following order: term; abbreviation; symbol; dimensions of quantities, measurement units; part of speech; delimiting phrase; statement of meaning, including specification limits where applicable; cross-references to synonyms or related terms; attribution.

E5. Elements of a Term

E5.1 *Abbreviations*—For terms usually represented by an abbreviation, place a comma and the preferred abbreviation following the term, and then the part of speech, for example:

average, *avg*, *n*—

E5.2 *Symbols*—For terms usually represented by a letter symbol, place a comma and the preferred symbol following the term, and then the part of speech, for example:

ampere, *A*, *n*—

E5.3 *Dimensions of Physical Quantities*—If the term represents a physical quantity, state its analytical dimension in italics in square brackets immediately following the letter symbol, or if there is none, following the term itself, for example:

critical height, $H_c[L], n$ —*in earth grading*, the maximum height at which a vertical or sloped bank of soil will stand unsupported under a specific set of conditions.

D653

E5.4 *Parts of Speech*—Including the part of speech enables the user to distinguish between closely allied terms; for example:

TERMINOLOGY IN ASTM STANDARDS

flame resistance, *n*—the ability to withstand flame impingement or give protection from it.

E176

flame resistant, *adj*—having flame resistance

E176

E5.5 Delimiting Phrases— If a term has different meanings in other technical fields or contexts, include an italicized phrase that delimits the definition to its field of application. This phrase should follow the dash and be separated from the basic statement of meaning by a comma, for example:

beam, *n*—*in a balance*, the horizontal pan support.

beam, *n*—*in a building*, a horizontal load-carrying structural member of the building frame.

beam, *n*—*in optics*, a concentrated unidirectional flow of radiant energy.

E284

E5.6 Specification Limits— If a definition involves specification limits applicable only to a specific standard (for example, in defining plate by specifying a thickness range), make the term specific to that standard. If, however, it is intended that this definition be broadly accepted within a specific technical committee or within ASTM International, delimit its scope, for example:

plate, *n*—*aluminum products*, a rolled flat product of thickness 6.4 mm (0.25 in.) or greater.

E5.7 Cross-references— Cross-references bring together related terms and narrower terms of a given genus. A cross-reference may take the place of a definition, or it may be appended to a definition to draw attention to related definition, for example:

flat-bed—see **truck**.

E5.8 Discussions— To fill in more detail of the concept being defined, supplementary information may be added as a separate discussion immediately following the definition, for example:

3.1 builder's model, *n*—a reference standard of quality for specific building components, denoting, by example, the level of quality adopted by a builder.

3.1.1 Discussion—The examples or samples of construction material, permit examination of quality level.

E631

E5.9 Attributions— If an existing definition is adopted from another reference source material (for example, technical standard, manual, or dictionary), copy it exactly and identify the original source in a boldface notation at the right margin following the definition.

E5.9.1 Notify Headquarters that permission to publish shall be obtained from the organization holding copyright. The definition shall not be published without permission.

E6. Use of Symbols, Acronyms, and Abbreviations as Terminology

E6.1 In standards containing numerous symbols, acronyms, or abbreviations, these items may be listed under the appropriate subheading as a convenience to the user of the standard.

E6.1.1 Symbols— Alphabetically list the symbols. Do not assign a number or capitalize the explanation, for example:

X.x Symbols:

A = cross-sectional area of specimen

B = normal induction

E6.1.2 Acronym— An acronym is a shortened form of a compound term that uses the initial letters of the term to make a pronounceable word. Alphabetically list, and capitalize the acronyms. In a few cases acronyms are written in lower case, such as laser and sonar. Do not capitalize the explanation unless it is a proper noun, for example:

X.x Acronyms:

X.x.1 PERT, *n*—*program evaluation and review technique*

X.x.2 radar, *n*—radio detecting and ranging

E6.1.3 Abbreviations— An abbreviation is a shortened form of a compound word or phrase. List the abbreviations alphabetically. Do not include abbreviations appearing in Section G3. Do not capitalize the explanation unless it is a proper noun, for example:

FORM OF A TERMINOLOGY STANDARD

X.x *Abbreviations:*
X.x.1 *assn*—association
X.x.2 *avg*—average

FORM OF A TERMINOLOGY STANDARD

E7. Subject Headings of Text

E7.1 The following list shows in sequence the subjects usually covered in a terminology standard:

Title (mandatory)
Designation (mandatory)
Scope (mandatory)
Significance and Use
Terminology: Terms and Definitions (mandatory)
Symbols, Abbreviations, Acronyms
Keywords (mandatory)
Annexes and Appendixes
Bibliography or References
Summary of Changes

E8. Title (Mandatory)

E8.1 The title should be as concise as possible but complete enough to identify the subject covered by the terminology. The title of a terminology standard preferably is *Terminology of ...*, although *Terminology Relating to ...* is acceptable.

E9. Designation (Mandatory)

E9.1 The designation will be assigned by ASTM International Headquarters upon submittal of the standard for Society approval.

E10. Scope (Mandatory)

E10.1 Provide information about the field of application of the terminology. Include information on how, when, and by whom the terminology will be used. Indicate here whether the terminology standard is general or relates to a specialized field. Where the content of a terminology standard is limited or restricted, as in a specialized terminology standard, the scope statement should so indicate.

E11. Referenced Documents

E11.1 Include in this section only ASTM standards, adjuncts, and standards or codes of other organizations. All referenced documents shall be cited.

E11.1.1 Provide footnotes to this section to indicate the sources of these documents.

E11.1.2 Do not include the year date when designating referenced documents unless there is a technical reason for specifying a particular year date.

E11.1.3 When listing reference adjuncts, provide a brief description, in this section, and a footnote of their availability.

E12. Significance and Use

E12.1 When use restrictions exist, include a significance and use statement. Give a warning of them such as: "This terminology is not intended to ..."

E13. Terminology (Mandatory)

E13.1 *Terms and Their Definitions (Mandatory)*—Compose a definition in the dictionary-definition form (see E4.5) and include the term, part of speech, definition, and when applicable, a delimiting phrase. Boldface the term and italicize the part of speech and delimiting phrase. Do not capitalize the term or any other components of the definition except for proper nouns, acronyms, or any other words capitalized in normal usage. List the terms unnumbered and in alphabetical sequence.

E13.1.1 Although the preferred style of listing terms and their definitions is in alphabetical sequence, in some cases it may be desirable to show the relationships in a logical family of concepts by grouping definitions according to a classification system. Place narrower or subordinate terms and their definitions in alphabetical order under the definition of the broader term, as the main entry, for example:

FORM OF A TERMINOLOGY STANDARD

soil structure, *n*—an arrangement and state of aggregation of soil particles in a soil mass.

flocculent structure, *n*—an arrangement composed of flocs of soil particles instead of individual soil particles.

honeycomb structure, *n*—an arrangement of soil particles having a comparatively loose, stable structure resembling a honeycomb.

single-grained structure, *n*—an arrangement composed of individual soil particles, characteristic structure of coarse-grained soils.

D653

E13.1.2 *Cross-references*— See E5.7 for rules governing cross-references.

E13.1.3 *Discussions*— See E5.8 for rules governing discussions.

E13.1.4 *Attributions*— See E5.9 for rules governing attributions.

E14. Symbols, Acronyms, and Abbreviations

E14.1 Any of these subsections can be used for the convenience of the user of the standard. Follow the guidelines detailed in Section E6.

E15. Keywords

E15.1 In this section, identify the words, terms, or phrases that best represent the technical information presented in the standard. Select the keywords from the title and body of the document and include general, vernacular, and trade terms. These keywords will be used in the preparation of the ASTM Subject Index.

E15.2 Select three or more keywords that describe the names of tests, procedures, special materials, or the specific application(s) that will facilitate the identification and retrieval of the standard. Keywords for terminology standards should include the words *definitions* and *terminology*.

E15.3 All keywords shall be stand-alone terms; incomplete phrases and unattached adjectives shall not be used.

E16. Annexes and Appendixes

E16.1 To aid in understanding and using the terminology, supplementary information such as illustrations, commentaries, or rationale may be included in annexes (mandatory information), or appendixes (nonmandatory information).

E17. Bibliography or References

E17.1 Supplementary publications, useful for consultation by users who wish to have more detailed information on the particular terminology, may be provided. If the publications are cited in the text, they should be listed in a References section at the end of the standard (see Section A25); otherwise, the section should be titled Bibliography.

E18. Summary of Changes

E18.1 This unnumbered section shall be placed at the end of the standard and begin with the following introductory paragraph:

Committee XXX has identified the location of selected changes to this standard since the last issue (insert designation and year date) that may impact the use of this standard.

E18.2 Next list, by section or subsection, changes since the last issue that may impact the use of the standard. Brief descriptions of the changes and reasons for the changes may be included.

E18.3 An example of the list of changes is:

- (1) Added the term bioconcentration.
- (2) Revised scope.
- (3) Modified the definition for sediment.

PART F

CAVEATS AND OTHER LEGAL ASPECTS IN STANDARDS—SPECIAL INSTRUCTIONS

INTRODUCTION

This section contains special instructions for the use of commercial-contractual statements, caveats, patents, trademarks, specific sources of supply, references to other organization, etc., in standards. When a standard contains any one of these statements or references, the committee shall obtain the necessary guidance from ASTM International Headquarters for the inclusion in the standard.

F1. Commercial-Contractual Items in Standards

F1.1 Certain requirements, such as those listed below, shall not be included in ASTM standards. If a committee feels it is important that this type of information be given, the committee may request an exemption from the Committee on Standards for the inclusion of such requirements in an ASTM standard.

- Adjustment, settlement, and investigation of claims
- Costs of testing, retesting statements
- Effective Dates
- Open-end agreements (see B1.2)
- Prices
- Purchasing

F1.2 The matter of who shall pay for services should be stated in the agreement or purchase order and not in the standard. Statements covering inspection (follow Section B19), rejection and rehearing (follow Section B20), testing and retesting (follow B16.2), marking (follow Section B22), and certification (follow Section B21) are suitable when they do not contain mandatory requirements covering the costs involved.

F2. Caveat Statements and Policies in Standards

F2.1 The generic caveat on *safety hazards* specified below shall appear in the Scope section of (1) test methods; (2) specifications where test methods are detailed other than by reference; and (3) practices and guides that involve the use of material, operations, or equipment.

This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

F2.1.1 When the standard does not involve the use of hazardous materials, operations, or equipment, a request for an exception to the inclusion of the generic caveat shall be presented to the ASTM Standing Committee on Standards.

F2.1.2 Specific *warning* statements shall be included in the standard (see Section A13 for the use of warning statements). These statements shall not prescribe specific remedial measures and actions. However, reference may be made to authoritative sources where reliable information concerning remedial measures can be obtained.

F2.1.3 Where there exists in a standard a specific warning statement(s), reference to the appropriate section(s) shall be made following the generic safety hazards caveat in the scope.

F2.2 Fire Standards:

F2.2.1 Every fire standard shall state its purpose, specify the known limitations of the standard, and specify the significance of the data that are generated (including relevance to human life and property, where appropriate). Use precise terminology (see Part E, Terminology in ASTM Standards), and include the appropriate caveat as listed below. Standards should include, when practical, sufficient background or explanatory material to guide users in properly applying ASTM fire standards.

F2.2.2 ASTM fire standards include fire-test-response standards, fire hazard assessment standards, and fire risk assessment standards.

CAVEATS AND OTHER LEGAL ASPECTS IN STANDARDS—SPECIAL INSTRUCTIONS

Other types of fire standards shall also be permitted, including terminologies, guides, specifications, and practices. The following criteria shall be followed by fire standards:

F2.2.2.1 Fire-test-response standards provide a means for measuring the response of materials, products, or assemblies to heat and flame under controlled conditions of test. ASTM fire-test-response standards shall contain the following caveat:

This standard is used to measure and describe the response of materials, products, or assemblies to heat and flame under controlled conditions, but does not by itself incorporate all factors required for fire hazard or fire risk assessment of the materials, products, or assemblies under actual fire conditions.

F2.2.2.2 Fire-hazard assessment standards provide a method for assessing the potential for harm for materials, products, or assemblies that could be anticipated under specified fire conditions. ASTM fire-hazard assessment standards shall contain the following statement:

This standard is used to predict or provide a quantitative measure of the fire hazard from a specified set of fire conditions involving specific materials, products, or assemblies. This assessment does not necessarily predict the hazard of actual fires which involve conditions other than those assumed in the analysis.

F2.2.2.3 Fire-risk assessment standards provide a method for assessing the probability of loss resulting from a given fire situation involving interaction between the material, product, or assembly with its environment. ASTM fire-risk assessment standards shall contain the following statement:

This standard is used to establish a means of combining the potential for harm in fire scenarios with the probabilities of occurrence of those scenarios. Assessment of fire risk using this standard depends upon many factors, including the manner in which the user selects scenarios and uses them to represent all scenarios relevant to the application. This standard cannot be used to assess fire risk if any specifications are different from those contained in the standard.

F2.2.2.4 ASTM develops fire standards other than fire-test-response standards, fire-hazard assessment standards, or fire-risk assessment standards, which provide information on fire issues that is not associated with a quantitative

output (where quantitative outputs include a binary pass/fail option or a classification into categories). Such ASTM fire standards shall contain the following statement:

This fire standard cannot be used to provide quantitative measures.

F2.2.2.5 The following generic caveat is appropriate for fire standards that do not describe a fire test but do produce quantitative results that are calculated measures of fire-test-response characteristics and not by themselves measures of fire hazard or fire risk.

This standard is used to determine certain fire-test responses of materials, products, or assemblies to heat and flame under controlled conditions by using results obtained from fire-test-response standards. The results obtained from using this standard do not by themselves constitute measures of fire hazard or fire risk.

F2.2.2.6 The following caveat is required for fire test methods:

Fire testing is inherently hazardous. Adequate safeguards for personnel and property shall be employed in conducting these tests.

F2.2.3 *Titles and Criteria for Fire-Hazard and Fire-Risk Assessment Standards*— All standards developed, approved, or reapproved for the analysis and control of fire hazard or fire risk shall contain the words “FIRE-HAZARD ASSESSMENT” or “FIRE-RISK ASSESSMENT” in the title. The results of all such assessments shall be expressed in terms that relate the item in question to the anticipated fire environment. When appropriate, the standard may also contain acceptance or classification criteria and a statistical sampling plan as a guide to its use.

F2.2.4 ASTM Committee E05 on Fire Standards is available to provide review of fire standards developed by other ASTM committees.

F2.3 *General Policy Caveat*— The Board of Directors approved the inclusion of a General Statement of ASTM Policy in all standards:

CAVEATS AND OTHER LEGAL ASPECTS IN STANDARDS—SPECIAL INSTRUCTIONS

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing, you should make your views known to the ASTM Committee on Standards, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

This statement shall appear in a note at the end of the standard, following the note on ASTM Disclaimer of Liability as to Patented Inventions (see Section F3 on Patents in ASTM Standards).

F2.4 Working Document Caveat— The Board of Directors approved the use of the “Working Document” statement to be stated on the front page of every draft document or manuscript from a committee. The following statement shall be typed or stamped on the document:

This document is not an ASTM standard; it is under consideration within an ASTM technical committee but has not received all approvals required to become an ASTM standard. You agree not to reproduce or circulate or quote, in whole or in part, this document outside of ASTM Committee/Society activities, or submit it to any other organization or standards bodies (whether national, international, or other) except with the approval of the Chairman of the Committee having jurisdiction and the written authorization of the President of the Society. If you do not agree with these conditions, please immediately destroy all copies of the document. *Copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. All Rights Reserved.*

Anyone requesting an ASTM committee draft document is entitled to receive a copy. However, after receipt of this document, they shall adhere to the caveat.

F2.5 Professional Judgment Caveat— When a Technical Committee is developing a Standard Guide or Practice that may involve professional judgment, the following caveats may be used:

Standard Guide—This guide offers an organized collection of information or a series of options and does not recommend a specific course of action. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this guide may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project’s many unique aspects. The word “Standard” in the title of this document means only that the document has been approved through the ASTM consensus process.

Standard Practice—This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project’s many unique aspects. The word “Standard” in the title means only that the document has been approved through the ASTM consensus process.

F2.6 Mercury Caveat— When a standard includes reference to the element of mercury or products containing mercury, the following caveat shall appear in the Scope section.

Warning—Mercury has been designated by many regulatory agencies as a hazardous substance that can cause serious medical issues. Mercury, or its vapor, has been demonstrated to be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury containing products. See the applicable product Safety Data Sheet (SDS) for additional information. Users should be aware that selling mercury and/or mercury containing products into your state or country may be prohibited by law.

F3. Patents in ASTM Standards

F3.1 When a committee has determined an item covered by a patent or a pending patent may be necessary in a proposed standard, the committee shall include a statement in the balloting process and a footnote in the draft standard, indicating a willingness to consider alternative(s). ASTM standards submitted to ANSI for approval as American National Standards shall conform to the ANSI patent policy. The ANSI patent policy may be obtained on the ANSI website ([www.ansi.org](http://www ansi.org)).

F3.1.1 Statement in Balloting Process— The statement with the ballot shall include a request for an alternative(s) as follows:

CAVEATS AND OTHER LEGAL ASPECTS IN STANDARDS—SPECIAL INSTRUCTIONS

The (name of material, product, process, apparatus) is covered by a patent. If you are aware of an alternative(s) to the patented item, please attach to your ballot return a description of the alternatives. All suggestions will be considered by the committee. If alternatives are identified, the committee shall reconsider whether the patented item is necessary. The committee, in making its decision, shall follow Regulation 15.

F3.1.2 *Statement in Footnote of Standard*—A footnote shall be included in the standard as follows:

The (name of material, product, process, apparatus and may include the patent number for reference) is covered by a patent. Interested parties are invited to submit information regarding the identification of an alternative(s) to this patented item to the ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.

The footnote shall be cited in the specific section of the standard where the patented item is first mentioned. Information describing the patented item will be set forth once in the standard, in this footnote.

F3.2 *Disclaimer of Liability as to Patented Inventions*—Neither ASTM International nor an ASTM committee shall be responsible for identifying all patents under which a license is required in using an ASTM document or for conducting inquiries into the legal validity of those patents which are brought to the Society's attention. Where applicable, an ASTM document shall include a note worded as follows:

"ASTM International takes no position respecting the validity of any patent rights asserted in connection with any item mentioned in this standard. Users of this standard are expressly advised that determination of the validity of any such patent rights, and the risk of infringement of such rights, are entirely their own responsibility."

F4. Use of Trademarks and Specific Sources of Supply for Apparatus, Reagents, and Materials in ASTM Standards

F4.1 ASTM International is authorized to certify products, equipment or services.

F4.1.1 ASTM International has a registered certification mark, along with other registered marks.

F4.1.2 ASTM International does not permit its trademarks to be used in a manner that suggests it has approved any product, equipment

or services other than in relation to an ASTM Certification Program.

F4.1.3 ASTM International does not permit the use of third-party trade- or service marks in ASTM standards in a manner that could suggest ASTM International's endorsement, approval, sponsorship, or certification of the trademarked item or service.

F4.1.4 Requiring participation in or that a product meet an ASTM Certification Program to comply with an ASTM standard is prohibited.

F4.2 *Trademarks:*

F4.2.1 Trademarks shall not be used in ASTM standards, unless the trademark is used to refer to a specific source of supply and such use conforms to the requirements of F4.3.

F4.2.2 Trademarks in ASTM standards shall not be used in a manner that: is false or misleading; violates the rights of the Mark's owner; violates any law, regulation or other public policy; or mischaracterizes the relationship between the Society and the material, product, system or service represented by the Mark, including but not limited to any use of a Mark that might reasonably be construed as an endorsement, approval, sponsorship, or certification by the Society of the material, product, system or service, or that might be reasonably construed as support or encouragement to purchase or utilize the material, product, system or service represented by the Mark. Judgment is at the sole discretion of the Committee on Standards.

F4.2.3 If ASTM International staff decides permission should be obtained to use a trademark, such permission shall be obtained by ASTM International Headquarters from the holder of the Mark.

F4.2.4 The first reference to the trademark in the standard shall include a footnote containing the name of the trademark holder. Trademark symbols shall not be included. "Trademark" shall be used as an adjective.

F4.3 *Sources of Supply:*

F4.3.1 To allow the widest possible use of ASTM standards, it is the responsibility of the sponsoring committee to ensure that sources of supply exist for unique or difficult-to-obtain apparatus, reagents, and materials.

CAVEATS AND OTHER LEGAL ASPECTS IN STANDARDS—SPECIAL INSTRUCTIONS

F4.3.2 Reference to specific commercial sources of supply are permitted only when there is a sole source of supply.

F4.3.2.1 Information on the sole source of supply shall be included in a footnote. Include wording such as:

The sole source of supply of the apparatus known to the committee at this time is (name and address of the supplier). If you are aware of alternative suppliers, please provide this information to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend.

F4.3.3 If the apparatus is not widely available, but more than one source of supply is known, or if apparatus that is widely available needs to be checked for suitability in the application specified, the committee can reference criteria for evaluating the apparatus. This reference can be to a section of the standard, to a separate existing standard or other published document, or can be in the form of an annex or appendix to the standard, or filed as an ASTM research report or adjunct.

F4.3.3.1 Text referencing the availability of such criteria, and any requirement on the use of such criteria, should be included in the appropriate section of the standard. Include wording such as:

All available apparatus may not be suitable for this application. Apparatus considered for use in this application shall be checked for suitability in accordance with the requirements of (insert reference to appropriate evaluation document).

F5. Reference to Standards of Other Organizations

F5.1 When referencing standards of other organizations, include the designation and title for the document in the *Referenced Documents* sections.

F5.1.1 In all cases, information on the title, designation, and source availability of the reference standards shall be included. Do not include the year date of reference documents unless there is a technical reason for requiring a particular revision.

F5.2 When it is necessary to quote portions of a non-ASTM standard, permission to republish shall be obtained from the organization holding copyright by ASTM International Headquarters.

F5.3 Joint logos shall not be printed on ASTM standards, except with the authorization of the Board of Directors. When a standard has been developed in cooperation with another organization(s), a note may appear in the standard, crediting the other organization's participation.

F5.3.1 In cases of disagreement on implementation of this policy, the matter shall be referred to the Committee on Standards for decision.

PART G

STANDARDS STYLE MANUAL

G1. Styling

G1.1 Check the draft standard against the rules given in this style manual. Many technical committees have editorial subcommittees that review draft standards before submittal to Headquarters. The ASTM editorial staff does the final styling and is available to assist members. There are a number of forms of assistance available to the ASTM standards-writer, such as the following: on-line templates to write standards and access to the latest *Form and Style for ASTM Standards*, the *ASTM Online Dictionary of Engineering Science and Technology* (see www.astm.org), *Committee White Papers* (supplements to this manual), and editorial workshops. Also, see the Introduction to this manual.

G1.2 Of the instructions that follow, some are included because they are deviations from the standard references, some because they are used frequently and are therefore listed here for convenience. Sections on various points of ASTM style appear in the following alphabetical order:

	Section
Abbreviations and Unit Symbols	G3
Alloy Designations	G4
And/Or	G5
Capitalization	G6
Chemical Formulas	G7
Contractual Parties	G8
Crystal Planes and Directions	G9
Dictionaries and Other Reference Publications on Style	G10
Dilution Ratio	G11
Figures	G12
Footnotes	G13
Hyphens	G14
Italics	G15
Mathematical Material	G16
Numbering	G17
Numerals	G18
Percent versus Percentage Points	G19
Polymers	G20
References, Other Documents	G21
References, Standards	G22
Sample versus Specimen	G23
SI Units	G24
Spelling	G25
Symbols	G26
Tables	G27
Tension/Compression/Flexure Tests	G28
Thermal Conductivity	G29
Thermometers	G30
Trademarks	G31

G2. Electronic Standard Preparation

G2.1 *Rationale for Ballot*— A rationale explaining the reason for the ballot is mandatory for all ballots.

G2.2 *New Standard*— For help in writing new standards, go to www.astm.org and use the online draft standard templates.

G2.3 *Extensive Revision*— When doing an extensive revision, process in manuscript form. Submit entire document for ballot and do not use track changes as shown in G2.4 if the revisions would make the ballot too cumbersome to follow. In this case, the ballot rationale shall be used to state the extent of the changes and that the document should be reviewed in its entirety.

G2.4 *Minimum to Moderate Revisions*

G2.4.1 Clearly indicate what has changed by using the “track changes” tool. Follow these instructions to properly use the track changes tool:

G2.4.1.1 Only submit for ballot those sections that are being revised.

G2.4.1.2 Open the document and excerpt into a separate file only those sections to be revised.

G2.4.1.3 Select “Tools” from the pull-down menu.

G2.4.1.4 Select “Track Changes.” This will automatically default to underlining added text and striking through deleted text.

G2.4.1.5 Ensure that all changes (insertions, deletions, etc.) have been properly marked with the revision bar in the margins.

G3. Abbreviations and Unit Symbols

G3.1 In the text, use unit symbols after numbers denoting a definite quantity. Example: “The length is 25 mm [1.0 in].”

G3.2 Use unit symbols in tables and figures, and in lists defining symbols used in equations.

G3.3 Use unit symbols and abbreviations in the singular only. Thus “fifty kilograms” shall be designated “50 kg,” not “50 kgs.” Exceptions: Figs., Nos., Eqs., Refs, Vols.

STANDARDS STYLE MANUAL

G3.4 When a long word or phrase for which there is no standard abbreviations is used frequently, it may be replaced by an abbreviation that is explained when it first occurs. Examples: below top dead center (btcd), relative centrifugal force (rcf).

G3.5 Commonly accepted abbreviations for names of societies, associations, government agencies, etc., may be used, provided the name is spelled out the first time it is used. Use no periods and run together. Examples: ASTM International, TAPPI, NASA, ARPA.

G3.6 The standard unit symbols and abbreviations for use in Society publications in the list below are so common that they may be used without explanation. For proper form and style for SI units follow IEEE/ASTM SI-10 American National Standard for Metric Practice, the SI Quick Reference Guide (Annex A) and Part G and Part H. If a discrepancy exists between these documents, follow Part G and Part H of the Form and Style Manual.

absolute	abs
academic degrees	use periods and run together (M.S., Ph.D., etc.)
alternating current	ac
American	Am. ^A
American wire gauge	AWG
ampere	A
ampere hour	Ah
angstrom	Å
ante meridian	a.m.
Association	Assn. ^B
atmosphere	atm
average	avg
barrel	bbl
becquerel	Bq
billion electronvolts	(use GeV, gigaelectronvolts)
Birmingham wire gauge	BWG
brake horsepower	bhp
brake-horsepower hour	bhp•h
Brinell hardness number	HB (see ASTM E10)
British thermal unit	Btu
Brown and Sharpe (gauge)	B&S
bushel	Bu
calorie	cal
candela	cd
centimetre	cm
centipoise	cP
centistokes	cSt
circular mil	cmil
coefficient	<i>spell out</i>
Company	Co. ^B
Corporation	Corp. ^B
coulomb	C
cubic	use exponential form ^C
cubic centimetre	cm ³

cubic decimetre	dm ³
curie	Ci
cycles per minute	cpm
cycles per second	(use Hz, hertz)
day	<i>spell out</i>
decibel	dB
degree (angle)	°
degree Celsius	°C
degree Fahrenheit	°F
degree Rankine	°R
degrees of freedom	df
Department	Dept. ^B
diameter	dia (in figures and tables)
differential	d
direct current	dc
Division	Div. ^B
dollar	\$
effective horsepower	ehp
electromotive force	emf
electronvolt	eV
Engineers	Engrs. ^A
equation(s)	Eq(s)
farad	F
figure(s)	Fig(s). ^D
foot	ft
footcandle	fc
foot pound-force	ft•lbf (use for work, energy) (see lbf•ft)
gallon	gal
gauss	G
gilbert	Gb
grain	<i>spell out</i>
gram	g
gravity (acceleration)	g
gray	Gy
half hard	SH
henry	H
hertz	Hz
horsepower	hp
horsepower hour	hp•h
hour	h
Hurter and Driffield scale (film density)	H&D
hydrogen ion concentration, negative logarithm of	pH
inch	in.
inch of mercury	in.Hg
inch of water	in.H ₂ O
inch pound-force	in.•lbf (use for work, energy) (see lbf•in.)
inclusive	incl (in figures and tables only)
Incorporated	Inc. ^B
indicated horsepower	ihp
inside diameter	ID (in figures and tables only)
Institute	Inst. ^B
integrated neutron flux	nvt, n/cm ²
Iron pipe size	IPS
joule	J
K alpha radiation	Ka
kelvin	K
kilocalorie	kcal
kilocycle per second	(see note on cycles per second)
kilogram	kg
kilogram-calorie	kg•cal
kilogram-force	kgf
kilogram metre	kg•m
kilometre	km

STANDARDS STYLE MANUAL

kilovolt	kV	month (When followed by a date use Jan., Feb., March, April, May, June, July, Aug., Sept., Oct., Nov., Dec. When there is no date, spell out. Examples: Jan. 15, 1995; January 1995)	<i>spell out</i>
kilovolt ampere	kVA	nanometre (formerly millimicron)	nm
kiloelectronvolt	keV	National	Nat. ^A
kilovoltpeak	kVp	newton	N
kilowatt	kW	normal	N
kilowatthour	kWh	number(s) (This abbreviation can often be omitted entirely. It is usually understood (as in <i>STP</i> 325, Specimen 8, Test 14, etc.))	No(s). ^D
kip (1000 lbf)	<i>spell out</i>	oersted	Oe
kip (1000 lbf) per square inch	ksi	ohm	O
Knoop hardness number	HK (see ASTM E384)	ortho	<i>o</i>
lambert	L	ounce	oz
linear	<i>spell out</i>	outside diameter	OD (in figures and tables only)
litre	L	page	p.
logarithm (common)	log	pages	pp.
logarithm (natural)	ln	para	<i>p</i>
lumen	lm	parts per billion	ppb
lux	lx	parts per million	ppm
magnetomotive force	mmf	pascal	Pa
mass-to-charge ratio	<i>m/e</i>	per	use the diagonal line in expressions with unit symbols ^E
maximum	max (in figures and tables only)	percent	%
maxwell	Mx	pico (prefix)	p
median effective concentration	EC ₅₀	picofarad	pF
median effective dose	ED ₅₀	pint	Pt
median lethal concentration	LC ₅₀	poise	P
median lethal dose	LD ₅₀	Poisson's ratio	μ (v is preferred in applied mechanics)
megacycles per second	(see note on cycles per second)	post meridian	p.m.
megagram	Mg	pound	lb
megawatt	MW	pound-force	lbf
meta	<i>m</i>	pound-force foot	lbf•ft (use for torque) (see ft•lbf)
metre	m	pound-force inch	lbf•in. (use for torque) (see in•lbf)
microampere	μA	pound-force per square foot	lbf/ft ²
microcurie	μCi	pound-force per square inch	psi or lbf/in. ²
microfarad	μF	absolute	psia
microgram	μg	pound-force per square inch gauge	psig
microhenry	μH	quart	qt
microinch	μin.	rad (dose unit)	rd
microlitre	μL	radian	rad
micro-micro (prefix, use pico)	p	radio frequency, ⁿ	rf
micrometre (formerly micron)	μm	radio frequency, ^{adj}	r-f
microroentgen	μR	radius	R (in figures and tables only)
microsecond	μs	Railway	Ry. ^B
microvolt	μV	Railroad	R.R. ^B
microwatt	μW	reference(s)	Ref(s)
mil	<i>spell out</i>	relative humidity	RH (in figures and tables only)
mile	<i>spell out</i>	revolution per minute	r/min
miles per hour	mph	revolution per second	r/s
milliampere	mA	Rockwell hardness, C scale	HRC (see ASTM E18)
milli-angstrom	mÅ	roentgen	R
millicurie	mCi	root mean square	rms
milliequivalent	meq	Saybolt Furol seconds	SFS
milligram	mg	Saybolt Universal seconds	SUS
millihenry	mH	second	s
millilitre	mL		
millimetre	mm		
millimetre of mercury	mmHg		
million electronvolts	MeV		
milliroentgen	mR		
millisecond	ms		
millivolt	mV		
milliwatt	mW		
minimum	min (in figures and tables only)		
minute	min (spell out when used with minimum)		
molal	<i>spellout</i>		
molar	<i>M</i>		
mole	mol		

STANDARDS STYLE MANUAL

secondary	<i>sec</i>
siemens	S
Society	Soc. ^B
socket joint (tables and drawings only)	Sj
specific gravity	sp gr
square	use exponential form (exception: psi, ksi) ^C
standard taper (tables and drawings only)	TS
steradian	sr
stokes	St
tensile strength	<i>spell out</i>
tertiary	<i>tert</i>
tesla	T
thousand electronvolts	KeV
thousand pounds	kip
thousand pounds-force per square inch	ksi
ton	<i>spell out</i>
torr	<i>spell out</i>
United States, <i>n</i>	<i>spell out</i>
United States, <i>adj</i>	U.S.
United States Pharmacopeia	USP
versus	<i>spell out</i>
Vickers hardness number	HV (see ASTM E384)
volt	V
volume (of a publication)	Vol ^D
watt	W
watt hour	W•h
weber	Wb
week	<i>spell out</i>
yard	yd
year	<i>spell out</i>
Young's modulus	E

^A In footnotes and references only.

^B At end of name only.

^C With unit symbols only.

^D Only when followed by a number.

^E Exceptions: cpm, mph, psi.

G4. Alloy Designations

G4.1 Use the following for alloy designations:

3135 steel
2024-T4 aluminum
Ti-4Al-3V-Mo
Ti-6Al-4V
0.5Ti molybdenum alloy or molybdenum with 0.5 % titanium or
0.5Ti alloy (where molybdenum is understood)

G4.2 ASTM and SAE have jointly developed a unified numbering system (UNS) for alloy identification (Practice E527).

G5. And/Or

G5.1 Do not use this expression. For example, when “A and/or B” is truly the case, write “A or B, or both.” For example, when “A,

B, and/or C” is truly the case, write “A, B, or C, or combinations thereof.”

G6. Capitalization

G6.1 Use capitals sparingly.

G6.2 In headings and titles, capitalize all nouns, pronouns, verbs, adjectives, adverbs, and all other words of five or more letters. Do not use initial caps on abbreviations (except see G6.6), or the phrase “et al.” or in the word “to” in the infinitive form of a verb.

G6.3 Use initial cap for “committee” where used in a title, as “Committee A01,” “Committee on Publications.” Everywhere else use lowercase, as “The committee recommends ...” This rule also applies to use of “symposium,” etc.

G6.4 Use initial cap on Society, Staff, and Headquarters when referring to ASTM International, its Staff, and its Headquarters.

G6.5 Capitalize trademarks. The initial cap becomes lowercase after the word is accepted into the language as generic. When in doubt, capitalize. The following are now lowercase: babbitt, bunsen, cellophane, diesel, kraft, neoprene, nylon, portland cement, saran.

G6.6 Use initial cap in referring to volumes, figures, tables, etc., as Vol 2, Fig. 2, Table 2. Use lowercase in less direct references such as: “This volume contains ...,” “In the same figure is shown ...”

G6.7 Use initial caps in such expressions as: Test 1, Specimen A, Cement B, Type 1, Class C, Grade B, etc.

G6.8 It is permissible to use all caps in directions such as: “Turn the machine to OFF position” or “Turn the dial to TITRATE.”

G7. Chemical Formulas

G7.1 Chemical formulas should be used freely in tables and figures. In text in which chemical formulas are mentioned infrequently, spell out the names. Where they are mentioned frequently, spell out the name in the first reference to it, followed by the formula in parentheses. The formula alone may be used subsequently. Do not use chemical formulas for organic or complex inorganic compounds. Always spell out the word

STANDARDS STYLE MANUAL

“water” and the name of the elements (use lead, not Pb). Isotopes may be written as carbon-14 or as ^{14}C .

G8. Contractual Parties

G8.1 Terms describing contractual parties shall be limited to the following:

G8.1.1 *Party of First Part*, producer, supplier, seller, or manufacturer.

G8.1.2 *Party of Second Part*, purchaser or user.

G9. Crystal Planes and Directions

G9.1 Use the following symbols for crystallographic planes and directions:

plane {111}

family of planes {111}

direction [111]

family of directions <111>

G10. Dictionaries and Other Reference Publications on Style

G10.1 For spelling, punctuation, capitalization, and foreign words, use a reference source material, such as *Merriam-Webster's Collegiate Dictionary* or *Webster's Third New International Dictionary* (print or electronic versions). For other information on style use *Manual of Style*, The University of Chicago Press (print or electronic version).

G11. Dilution Ratio

G11.1 Use the form “9+1” rather than “9:1” for dilution ratios. This means that the 1 part solute is to be mixed with the 9 parts solvent. Specify whether volumes or weights are being used, for example, volume/volume, weight/volume, etc.

G12. Creating and Submitting Figures for Ballot

G12.1 *Definition*— A figure can be a technical drawing (vector line art), information visual (chart/graph/schematic), or a photograph, or a combination of these.

G12.2 Please include figure(s) with your ballot submission to ensure timely publication of your standards.

G12.2.1 Size each figure up to 30 picas in width (approximately 125 mm or 5 in.) This is the maximum.

G12.3 *How do I create and save non-photographic images (for example, graphs, drawings, schematics) or digital photographs from a hard copy original or from computer-generated artwork?*

G12.3.1 Keep in mind that the larger the original, the greater potential for a better reproduction.

G12.3.2 Size each figure to 30 picas in width (approximately 5 in.). For full-page/landscape figures, size to 42 picas in width (approximately 7 in.). These are the maximum allowable widths.

G12.3.3 When taking digital photographs, use the highest resolution possible on the camera. Absolute minimum resolution is 1200×960 pixels. 1936×1296 pixels is better, and 2896×1944 pixels is even better.

G12.3.4 Check the image quality and the brightness and contrast levels.

G12.3.5 Submit artwork in its original file source/extension. ASTM graphic designers can work with most file formats, including CAD. (SVG, EPS, or AI files are preferred for technical drawings. TIFF or JPG preferred for photographs or halftones. GIF is discouraged as a generally low-resolution file type.)

G12.3.6 If you need to scan hard copy, adjust the resolution on your scanner as follows:

G12.3.6.1 Technical drawing or other information visual FTP—Please scan the line art at 1200 dpi (dots per inch).

G12.3.6.2 Photograph FTP—Please scan at 600 DPI. If the image is to be enlarged, increase the percentage of the scanned image.

G12.3.6.3 ASTM can also scan for you (see G12.5).

G12.3.7 Furnish short titles or captions for each figure.

G12.4 *How do I submit the file?*

G12.4.1 **E-mail** your staff manager or editor.

STANDARDS STYLE MANUAL

G12.4.2 **FTP**—Please contact the ASTM Help Desk for assistance at 1-800-262-1373.

G12.4.3 **DVD/CD-ROM**

G12.4.4 *Hard copy can be mailed to ASTM Headquarters, in case ASTM cannot use the electronic file. See the following instructions.*

G12.5 *How do I submit hard copy?*

G12.5.1 Provide camera-ready figures of professional quality, because the printer will scan what is submitted, and it will appear in the standard exactly as you have supplied it. To this end:

G12.5.1.1 Use a laser or other high-quality printer.

G12.5.1.2 Do not handwrite on the figure.

G12.5.1.3 Do not use a faxed or photocopied figure.

G12.5.1.4 Furnish short titles or captions for each figure.

G13. Footnotes

G13.1 For footnotes in tables, use superior italic capital letters, beginning anew for each table. Type the footnotes below the table.

G13.2 For all other footnotes, use superior numbers.

G13.3 Do not use footnotes in figure captions. Either cite a previous footnote or reference (for example, “see Footnote 3,” or “taken from Ref (4)”), or write out the reference in the caption. For style of publication footnotes, see Sections G21 and G22.

G14. Hyphens

G14.1 In ASTM standards, hyphenate compound adjectives, such as: “low-alloy steel,” “cold-drawn wire.” Compound adjectives involving SI units should use a space, such as: “50 mm gauge.” Write expressions such as the following *with* the hyphen after the first word: “high- and low-temperature tests.” For the sake of appearance, omit hyphens in such expressions as “3 % nickel alloy” or “3EC rise in temperature.” Also do not hyphenate chemical compounds and the words “stainless steel” and “cast iron.”

G14.2 Do not hyphenate an adverb-adjective combination when the adverb ends with “ly.”

G14.3 Spelled-out fractions used as nouns are not hyphenated (one third of the load); used as adjectives, they *are* hyphenated (a one-third share).

G15. Italics

G15.1 *Italicize:*

G15.1.1 All symbols for physical quantities that can have a numerical value (quantity symbols).

G15.1.2 Letters in parentheses used to identify listings in text or subdivisions of illustrations, “Fig. 1(a).”

G15.1.3 *Chemistry*— *N* (normal), *M* (molar), *c* (concentration). Do not italicize symbols for the elements (Fe, N, Na, etc.) Exception: italicize *N* for nitrogen when it is used to denote position, as in *N*-methylaniline. Italicize *o*, *m*, and *p* as ortho, meta, and para; for example, *p*-cresol. Italicize and abbreviate secondary and tertiary as *sec* and *tert*; for example, *tert*-butyl alcohol. Italicize *iso* when used in *isooctane*.

G15.1.4 *Titles*— of books, including ASTM books, such as *Annual Book of ASTM Standards* and *ASTM STP 379*.

G15.1.5 *Foreign Words*— Use a reference source material, such as *Merriam-Webster’s Collegiate Dictionary* or *Webster’s Third New International Dictionary* (print or electronic version) as a guide to foreign words.

G15.1.6 *Transistor Type*— Use *n-p-n*, *p-n-p*, *n-type*, etc.

G15.2 *Do not italicize:*

G15.2.1 Letters used to subdivide a categorical classification, such as Method A, Cement B, Class C, Grade D, Type E, Sample F.

G15.2.2 *Metallurgy*— *A₁* point, *A_{T1}*, etc.

G15.2.3 *Abbreviations*— pH, sin, cos, tan, log, d (for derivative).

G16. Mathematical Material

G16.1 Mathematical material can appear in the standard text or as equations. In all cases, submit clear copy, without ambiguities arising from carelessly placed subscripts or superscripts, confusion between Greek and Roman letters, incomplete fraction lines, and so on. When there

STANDARDS STYLE MANUAL

is a possibility of confusion (for example capital letter O and zero), include an editorial note nearby to clarify with more description. For example:

$$1 = 1 \times 10^3 \mu\text{m}$$

Editorial Note: Lowercase “L” equals number one times 10 superscript 3 Greek mu

G16.2 Greek Symbols— If unclear, type out the name of the Greek symbol in an editorial note.

G16.3 Superscripts (superior symbols) should be marked with a caret or type “super-script” in an editorial note. Subscripts (inferior symbols) should be marked with an inverted caret or type “subscript” in an editorial note.

G16.4 Indicate what symbol is preferred to show multiplication (for example, times symbol, middle dot, or asterisk).

G16.5 Equations— Type on a separate line in a larger font. Equations are numbered throughout the text. The format for a numbered equation is:

$$S = \frac{Mc}{I}$$

where:

S = stress, psi or Pa,

M = bending moment, lbf•in. or N•m,

c = distance from neutral axis to outermost fiber, in., or m, and

I = second moment of area, in.⁴ or m⁴.

G16.6 Exp versus e— If the exponent is relatively short and on one line, without superscripts or subscripts, use e:

$$e^{(a-b)cx}$$

If it is relatively long or has superscripts or subscripts, use exp:

$$\exp[x^2/2 - \ln(x/a)]$$

G16.7 Fractions— Use the solidus (diagonal line) in the text:

$$1/4$$

Use the built-up fraction (with a horizontal line) in an equation. If you use a built-up fraction on one side of an equation, use it on the other side:

$$\frac{a}{b} = \frac{c-d}{e-f_2} \times 12$$

Use parentheses liberally to clearly show the complete numerator or denominator. For example, does log a/b mean log (a/b) or (log a)/ b ? Use the parentheses to clarify. If you write $a/b + c$ but mean $a/(b + c)$, use parentheses.

G16.8 Statistical Data— For data that are treated statistically, follow the recommendations in the *ASTM Manual on Presentation of Data and Control Chart Analysis (OPN9)0* Committee E11 on Quality and Statistics, which is responsible for MNL7, is prepared to cooperate with other technical committees in helping them present data most effectively. In particular:

G16.8.1 To present the essential information contained in a set of observations from one population, give the average, the standard deviation or coefficient of variation, and the number of observations.

G16.8.2 Whenever you give an average, give also the number of observations on which the average is based.

G16.8.3 Use the following symbols, where needed:

\bar{x} = average (arithmetic mean)
 s = root-mean square deviation
 n = number of observations
 s = standard deviation
 v = coefficient of variation

G17. Numbering

G17.1 See Part D.

G18. Numerals

G18.1 Use arabic numerals in designating figures and tables, thus: “Fig. 3,” “Table 6.”

G18.2 Spell out all numbers from one through twelve, with the following exceptions:

G18.2.1 Use numerals when the quantity is partly fractional, as: 1.15, 1½.

STANDARDS STYLE MANUAL

G18.2.2 Use numerals when followed by an expression having a standard unit symbol, as: 25 mm, 45 kg, 9 %.

G18.2.3 If for any reason the standard abbreviation or unit symbol of the expression following the number is not used, or if the expression does not admit of abbreviation (as *year*, *ton*, etc.), the use of numerals is optional, unless covered in the following paragraphs:

G18.2.4 In statements containing two or more numbers, one of which is greater than twelve, express all numbers as numerals, such as “2 tests and 16 weighings.”

G18.2.5 In a series of connected numerical statements implying precision, use numerals, as “5 months, 3 days.”

G18.2.6 Use numerals after abbreviations, as: Vol 26, Fig. 2.

G18.3 Use numerals for all numbers exceeding twelve, with the following exceptions:

G18.3.1 Do not begin a sentence with a numeral. When the numeral is spelled out, also spell out the unit following, as “One gram is usually sufficient.”

G18.3.2 Spell out round numbers used in an indefinite sense, such as, “a *hundred* metres or so.”

G18.3.3 Spell out numbers when used in the following manner: “*fifteen* 25"mm rods” (or 15 twenty-five millimetre rods).

G18.3.4 In decimal numbers having no units, place a zero before the decimal point, as: “0.65 mm,” not “.65 mm.”

G18.4 In pointing off numbers of more than four figures, use spaces instead of commas in the text, illustrations, and tabular matter (1 234 567). Do not point off numbers of four figures (1234) except in tables when they occur in a column containing numbers of more than four figures.

G18.5 In expressing ratios (except dilution ratios) use 1 to 10 or 1:10, not 1-10.

G18.6 In expressing grades of, for example, emery paper, use 3/0, not 000.

G19. Percent versus Percentage Points

G19.1 When a quantity is reduced from 40 to 30, it is reduced by 25 %. When a quantity decreases from 40 % to 30 %, it decreases by 10

percentage points. Use the forms “mass percent,” “volume percent,” “atom percent,” etc.

G20. Polymers

G20.1 Where the name of the monomer is one word, the prefix “poly” is simply run in, as: polystyrene, polyisobutylene, etc. Where the name of the monomer is two words, they are enclosed in parentheses and the prefix “poly” added, as in the following words: poly(vinyl chloride), poly(methyl methacrylate).

G21. References, Other Documents

G21.1 If there are fewer than five references cited in the standard, use footnotes. If five or more references are cited, type them in a separate list of references at the end of the manuscript, following annexes and appendixes, if any. Assign a consecutive arabic number to each reference. Indicate the reference in the text by enclosing the number in parentheses and using boldface. Show a footnote reference after the first boldface reference number, stating in the footnote: “The boldface numbers in parentheses refer to the list of references at the end of this standard.” If it is necessary to use the word “reference,” use the style: “According to Ref (3) ...” It is preferable, however, to use the author’s name, as “According to Jones (3) ...” If there are two authors, use both names, as: “According to Jones and Smith (3)...” If there are three or more authors, use “et al,” as: According to Jones et al (3) ...”

G21.2 Do not list ASTM standards as references; list them in the section on Referenced Documents (see also Section A6). Do not list as references documents that are not readily accessible to the reader, such as unpublished theses and private correspondence.

G21.3 Type references (and publication footnotes) as follows:

G21.3.1 *Books*— Type author’s name or names (initials last), complete title of book (italic, no quotation marks), name of publisher (no abbreviations), address of publisher (city and state), year of publication, and page number, if reference is to a page number. Example:

STANDARDS STYLE MANUAL

Jones, J. J., *Plasticity and Creep*, John Wiley & Sons, Inc., New York, NY, 1958, p. 250.

G21.3.2 *Magazines, Journals* (including *Standardization News*)— Type author's name or names (initials last), title of paper (in quotation marks), complete title of journal (italic, no quotation marks), volume number, issue number (this may be omitted if the journal page numbers are continuous throughout the volume), date of publication, and page numbers. Example:

Jones, J. J., and Smith, R. R., "Correlation of Brinell Hardness and Tensile Strength," *Materials in Design Engineering*, Vol 10, No. 2, February 1958, pp. 52-67.

G21.3.3 *Proceedings, Transactions, Reports, Bulletins, etc.*— Type author's name or names (initials last), complete title of paper (in quotation marks), name of publication (italic, no quotation marks), name of publisher, volume number, if any, date of publication, and page numbers. Examples:

Jones, J. J., "Lubrication Problems in Space Vehicles," *Transactions*, American Society of Mechanical Engineers., Vol 52, 1948, pp. 135-140.

Jones, J. J., "Classification of Bitumens," *Journal of the Institute of Petroleum*, Vol 38, 1952, p. 121.

Jones, J. J., "Fatigue of Aircraft Structures," *NASA TR-108*, National Aeronautics and Space Administration, 1959.

Jones, J. J., "Effect of Carbon Content on Notch Properties of Aircraft Steels," *Bulletin 642*, Engineering Experiment Station, University of Illinois, 1957.

G21.3.4 *Symposium Volumes or Other Books Comprising Collections of Papers*— Follow style for books in G21.3.1 and add title of paper, in quotes, after author's name.

G21.3.5 *Patents*— Type patent number and date. Example: U.S. Patent No. 2 232 185, Feb. 18, 1941.

G21.3.6 *Annual Book of ASTM Standards*— Cite referenced ASTM standards in section on Referenced Documents, not in references (see Section G22).

G21.3.7 *ASTM Proceedings*— McVetty, P.G., "The Interpretation of Creep Tests," *Proceedings*, ASTM International, Vol 34, Part II, 1934, p. 105. (Volume 38 was the last to be issued in two parts.)

G21.3.8 *ASTM Special Technical Publication:*

G21.3.8.1 *Whole Book:*

Symposium on Synthetic Bioabsorbable Polymers for Implants. ASTM STP 1396, ASTM International, 2000.

G21.3.8.2 *Single Paper:*

Gorna, K., and Gogolewski, S., "Novel Biodegradable Polyurethanes for Medical Applications," *Symposium on Synthetic Bioabsorbable Polymers for Implants, ASTM STP 1396*, ASTM International, 2000, p. 39.

G21.3.8.3 *Journal Reference to Website:*

Name of Author(s), "Name of Paper," *Title of Journal*, Volume, Number, Issue Number, Paper Identification Number, Online, Available: URL, Access Date.

Example:

Aydilek, A. H. and Edil, T. B., "Evaluation of Woven Geotextile Pore Structure Parameters Using Image Analysis," *Geotechnical Testing Journal*, Vol. 27, No.1, ID GTJ111070, Online, Available: www.astm.org, 12 January 2004.

G22. References, Standards

G22.1 Refer to ASTM standards first in the section on Referenced Documents. Follow the designation (without year) with the full title, and use a footnote to refer to the appropriate publication. The footnote should read: For referenced ASTM standards, visit the ASTM website, www.astm.org or contact ASTM Customer Service at Service@astm.org. For the *Annual Book of ASTM standards* volume information, refer the standard's Document Summary page on the ASTM website. Thereafter use simply the abbreviated designation (Test Method D1708, Practice E691, Specification A250/A250M, etc.) Do not include the word "Standard." Do not use quotes on titles of standards, whether those of ASTM International or other organizations.

G22.2 Any reference to a combined standard shall include the entire designation, for example, Specification A36/A36M. When only one system of units is applicable, this may be indicated where the reference is cited; for example:

This material shall conform to the general requirements stated in SI units of Specification A36/A36M.

STANDARDS STYLE MANUAL

G22.3 Do not refer to a specific paragraph, section, table, or figure of another standard unless necessary to avoid confusion. For example, say, “the section on Impregnation Time of Methods D202.”

G23. Sample versus Specimen

G23.1 In general, the word “sample” should be used only to describe a piece or quantity of bulk material that has been selected by some sampling process. Pieces or quantities taken from the sample for testing are called “specimens.” Quantities of liquid or bulk aggregate are usually called “samples,” because a sampling procedure is usually used to obtain them.

G23.2 To describe the piece on which a test is made, use “specimen” or “test specimen,” not “piece” or “sample.”

G24. SI Units

G24.1 SI units shall be included in all ASTM standards in accordance with IEEE/ASTM SI-10, the SI Quick Reference Guide (Annex A) and Part G and Part H. If a discrepancy exists between these documents, follow Part G and Part H of the Form and Style Manual.

G24.2 Combined Standards—Both units of measure are included, and either system is to be regarded separately as the standard. The combined designation format: A36/A36M. (See also A3.4.)

G25. Spelling

G25.1 Included in the following list are those spellings of words commonly found in ASTM standards. For words that do not appear in this list, use a reference source material. *See Section G10 on Dictionaries and Other Reference Publications on Style.* Use international spelling for SI units; that is, litre and metre.

A

airborne
alignment
appendixes (pl)

B

babbitt metal (lc)
Brinell (cap)

C

catalog (not catalogue)
CODEN

D

Disk
disc (CD)
Diskette (Floppy)
drier (comp. of dry)
dryer (apparatus)

E

ensure (meaning be sure)
et al.
eutectic (noun)
eutectoid (adj.)

F

fireclay (adj.)

G

gastight
gauge (measurement, instrument)
Geiger-Muehller tube
gray (not grey)

H

heat treat (verb)
heat-treated (adj.)
Hooke’s law (lc “I”)

I

indexes (pl)
in situ (roman)
insofar
isooctane (all other “iso’s” roman)

K

kerosine/kerosene

L

litre (not liter)

STANDARDS STYLE MANUAL

M

magnetic particle inspection (not Magnaflux)
metre (not meter)
microscopic (meaning very small)
microscopical (meaning pertaining to use of a microscope)

N

neoprene (lc)
nital (lc)
nitrile rubber (butadiene) (lc)
Normal Law integral (cap N and L)

P

pipet (not pipette)
plaster of paris (not plaster of Paris)

R

Rockwell (cap)

S

sigma phase (spell out sigma)
siliceous
SR-4 strain gage
Stokes' law (lc "l")

U

Usage

V

V-Notch (noun and adj.)

X

X ray (noun)
X-ray (adj and verb)

G26. Symbols

G26.1 In general, avoid the use of symbols in text except in accordance with Sections G3 and G7. When stating dimensions, use "by" not \times , for example, "10 by 5 in. (254 by 127 mm)." Show tolerances, for example, as 10 by 5 ± 2 in. (254 by 127 ± 6 mm)." Do not use a hyphen or a dash for the word "to" except in tables where needed to conserve space. Do not use (') or (") for feet and inches in text, tables, or figures.

G26.2 In combination with words not having symbols, spell out entirely, for example, "bubbles per minute."

G27. Tables

G27.1 Number each table with an arabic numeral and give it a title that is complete and descriptive.

G27.2 In column headings, first include the quantity being tabulated, then a comma, then the units, for example:

"Tensile Strength, min, psi."

G27.3 *Powers of 10*— Do not use powers of 10 in the column heading, since it is not clear whether the numbers in the table have been or are to be multiplied by the power of ten. Instead, indicate the multiplication (for example, 1.45×10^6) in the first entry in the table; or use an expression such as "Young's Modulus, millions of psi" in the column heading.

G27.4 *Footnotes*— See G13.1.

G27.5 Use horizontal rules under column headings. Use vertical rules only when the complexity of the table demands them for clarity. Use leaders (three periods) in any space that represents a blank entry.

G27.6 *Notes*— Additional information can be included in a note that appears below the title.

G27.7 When two (or more) separate systems of units are both listed in one table (for example, SI and inch-pound units), separate the units by using separate columns, or parentheses, or brackets.

G27.7.1 When the size of a table and limitations of space (on the printed page) make it impractical to expand the table to include SI unit equivalents, duplicate the table.

G27.7.2 When following the instructions given in G27.7 or G27.7.1 is impractical, because of the size and the number of tables, include the pertinent conversion factors as footnotes under each table instead of attempting to include the actual converted numbers themselves.

G28. Tension/Compression/Flexure Tests

G28.1 The words "tension," "compression," and "flexure" are used adjectivally to modify "specimen," "test," or "testing." Examples: tension test, compression testing, flexure specimen. To modify other nouns, the adjectives "tensile,"

STANDARDS STYLE MANUAL

“compressive,” and “flexural” are used. Examples: tensile strength, compressive force, flexural data.

G28.2 In some areas (notably the textile industry) there is a difference between a “tension test” and a “tensile test,” and in these cases the appropriate terminology shall be used.

G29. Thermal Conductivity

G29.1 The form to be used for the unit for thermal conductivity k is: Btu•in./h•ft²• F[SI units: W/(m•K)].

G30. Thermometers

G30.1 Whenever possible, refer to thermometers described in ASTM Specification E1 or E2251, for ASTM Thermometers. Reference to an ASTM thermometer of the desired range should be as follows:

Thermometer—ASTM (name) Thermometer having a range from ____ to ____ (°C or °F, whichever applies) and conforming to the requirements for Thermometer (give thermometer number; for example, 16F) as prescribed in Specification (E1 or E2251, whichever applies).

G30.2 Do not specify both temperature scales unless there is a definite need for them.

G31. Trademarks

G31.1 Avoid the use of trademarks whenever possible. For example, use aluminum oxide instead of Aloxite, petroleum jelly instead of Vaseline. When trademarks are used, they should, of course, be initial cap and the owner of the

trademark indicated by footnote.

Aloxite (trademark, use aluminum oxide)

Alundum (trademark)

Bakelite (trademark)

Carborundum (trademark)

Celite (trademark)

Chromel-Alumel (trademark)

Haydite (trademark)

Inconel (trademark)

Invar (trademark)

Kel-F (trademark, use polychlorotrifluoroethylene)

Lucite (trademark, use poly(methyl methacrylate) (PMMA))

Magne-Gage (trademark)

Masonite (trademark)

Monel metal (trademark)

Muntz metal (trademark)

Mylar (trademark, use polyester film)

Nichrome (trademark)

Nujol (trademark, use light mineral oil)

Plexiglas (trademark, use poly(methyl methacrylate) (PMMA))

Pyrex (trademark, use borosilicate)

Scotch tape (trademark, use pressure-sensitive tape)

Teflon (trademark, use TFE-fluorocarbon or polytetrafluoroethylene (PTFE))

Thiokol (trademark, use as an adjective, as “Thiokol polysulfide rubber”)

Transite (trademark)

Tygon (trademark, use vinyl)

Vaseline (trademark, use petroleum jelly)

Vycor (trademark, use high-silica)

PART H

USE OF SI UNITS IN ASTM STANDARDS

H1. Scope

H1.1 This part is intended to guide technical committees in the use of the standard formats for denoting the use of the International System of Units (SI), non-SI units (usually inch-pound), or both in ASTM standards.

H1.2 SI units of measurement shall be included in all ASTM standards.

H1.2.1 Each technical committee shall have the option of using rationalized SI units, or rationalized inch-pound units, or both, as the standard units of measure.

DISCUSSION—Given ASTM's mission to be the foremost developer and provider of voluntary consensus standards with global recognition and use, ASTM technical committees are urged to give diligent consideration to the use of rationalized SI (metric) units in their standards

H1.2.2 Follow the procedures given in IEEE/ASTM SI-10, the SI Quick Reference Guide and Part G and Part H. If a discrepancy exists between these documents, follow Part G and Part H. IEEE/ASTM SI-10 appears in the *Annual Book of ASTM Standards*, and is also available as a separate publication.

H1.2.2.1 For committees that have special considerations with the use of SI units in ASTM Standards, it is permissible to develop committee specific technical guidance for clarification. Examples of such documents are as follows:

ASTM Committee B05 on Copper and Copper Alloys
Outline of Form of Specifications
(www.astm.org/COMMIT/B05_outline.pdf)
A994 Guide for Editorial Procedures and Form of
Product Specifications for Steel, Stainless Steel, and
Related Alloys

H2. Terminology

H2.1 *SI unit, n, in ASTM standards*— unit of the International System of Units (SI) and other units specifically approved in IEEE/ASTM SI-10 as a unit for use with SI.

H2.2 *inch-pound unit, n, in ASTM standards*— unit based on the inch and the pound, commonly used in the United States of America and defined by the National Institute of Standards

and Technology, including certain other units accepted for use with these units.

DISCUSSION—Inch-pound, also known as U.S. Customary Units, are one type of non-SI units. Another example of non-SI units is the centimetre gram second (cgs) system.

H2.3 *rationalization, n, in ASTM standards*— (formerly *hard conversion*) the planned simplification of a converted value achieved by modifying the value to reflect dimensions or physical characteristics of existing real measurements or configurations; as a result of this change the object or quantity may not be interchangeable with the original.

H2.4 *SI standard, n, in ASTM standards*— a standard that contains rationalized SI units of measurement.

DISCUSSION—There are two formats of SI standards: solely SI, combined standard.

H2.4.1 *Solely SI standard, n*— an ASTM standard in which only rationalized SI units are cited; inch-pound units are not provided in the standard.

H2.4.2 *combined standard, n*— an ASTM standard in which rationalized SI units and inch-pound units are included in the same standard, with each system of units to be regarded separately as standard. (For example, Specification A36/A36M).

H3. Format Requirements for Standards in SI Units

H3.1 For a standard citing SI units of measurement as the standard units of measurement, select the type of SI standard to be written and follow the appropriate format requirement listed below:

H3.1.1 *Solely SI Standards*:

H3.1.1.1 *Scope*— Include the following in the scope as a numbered paragraph:

1.X Units—The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

USE OF SI UNITS IN ASTM STANDARDS

H3.1.1.2 *Units*— Within the text, show only rationalized SI units.

H3.1.2 *Combined Standards*:

H3.1.2.1 *Scope*— Include the following in the scope as a numbered paragraph:

1.X Units—The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

H3.1.2.2 *Units*— Within the text, it is recommended that SI units appear first followed by the inch-pound units in brackets. However, a technical committee can opt to reverse the order in which the units appear (i.e., inch-pound units shown first, followed by SI units in brackets) if the following additional conditions are met: all units appear in a consistent order throughout the text of the standard; all combined standards under the technical committee's jurisdiction apply the same convention.

H3.1.2.3 *Specifying Selected Units in Combined Standard*— When citing a combined standard and applying only one system of units, indicate the system of units to be applied (see B9.4).

H4. Format Requirements for Standards in Inch-Pound Units

H4.1 For a standard citing inch-pound units of measurement as the standard units of measurement, follow the format requirement below:

H4.1.1 *Scope*— Include the following in the scope as a numbered paragraph:

1.X Units—The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

H4.2 *Units*— Within the text, inch-pound units shall appear first followed by non-rationalized SI units in parentheses.

H5. Special Format Considerations

H5.1 *Repetitive Equivalents*— For standards in which inch-pound units are regarded as standard, insert a specific repetitive SI equivalent only the first time it occurs in each paragraph of a standard.

H5.2 *Expressing General Units*— When a standard specifies units for reporting results, the preferred unit in each system should be stated, especially in the case of compound units. For example, “Report twist of yarn in twists per inch (twists per metre)”; not “... in twists per inch (25.4 mm).”

H5.3 *Using Percentages for Tolerance Limits*— When appropriate, eliminate the need for equivalents in the case of tolerances by expressing the limits in percentages.

H5.4 *Sieve Sizing*— When a standard cites sieve sizes, use the standard sieve sizes given in Table 1 of ASTM Specification E11, Wire Cloth and Sieves for Testing Purposes.

H5.5 Where it has been long-standing practice to use SI units alone (such as stating temperatures only in degrees Celsius), equivalents may be omitted.

H6. Tables

H6.1 For instructions on including SI units in tables, see Section G27.

ANNEX A

SI QUICK REFERENCE GUIDE

SI QUICK REFERENCE GUIDE:
International System of Units (SI)
The Modern Metric System***UNITS**

The International System of Units (SI) is based on seven base units:

Base Units

<i>Quantity</i>	<i>Name</i>	<i>Symbol</i>
length	metre	m
mass	kilogram	kg
time	second	s
electric current	ampere	A
thermodynamic temperature	kelvin	K
amount of substance	mole	mol
luminous intensity	candela	cd

and a number of derived units which are combinations of base units and which may have special names and symbols:

Examples of Derived Units

<i>Quantity</i>	<i>Expression</i>	<i>Name</i>	<i>Symbol</i>
acceleration			
angular	rad/s ²		
linear	m/s ²		
angle			
plane	dimensionless	radian	rad
solid	dimensionless	steradian	sr
area	m ²		
Celsius temperature	K	degree Celsius	°C
density			
heat flux	W/m ²		
mass	kg/m ³		
current	A/m ²		
energy, enthalpy			
work, heat	N·m	joule	J
specific	J/kg		
entropy			
heat capacity	J/K		
specific	J/(kg·K)		
flow, mass	kg/s		
flow, volume	m ³ /s		
force	kg·m/s ²	newton	N
frequency			
periodic	1/s	hertz	Hz
rotating	rev/s		
inductance	Wb/A	henry	H
magnetic flux	V·s	weber	Wb
mass flow	kg/s		
moment of a force	N·m		
potential, electric	W/A	volt	V
power, radiant flux	J/s	watt	W
pressure, stress	N/m ²	pascal	Pa
resistance, electric	V/A	ohm	Ω
thermal conductivity	W/(m·K)		
velocity			
angular	rad/s		
linear	m/s		
viscosity			
dynamic (absolute) (μ)	Pa·s		
kinematic (ν)	m ² /s		
volume	m ³		
volume, specific	m ³ /kg		

* For complete information see IEEE/ASTM SI-10.

SYMBOLS

Symbol	Name	Quantity	Formula
A	ampere	electric current	base unit
Bq	becquerel	activity (of a radio nuclide)	1/s
C	coulomb	electric charge	A·s
°C	degree Celsius	temperature interval	°C = K
cd	candela	luminous intensity	base unit
F	farad	electric capacitance	C/V
Gy	gray	absorbed dose	J/kg
g	gram	mass	kg/1000
H	henry	inductance	Wb/A
Hz	hertz	frequency	1/s
ha	hectare*	area	10 000 m ²
J	joule	energy, work, heat	N·m
K	kelvin	temperature	base unit
kg	kilogram	mass	base unit
L	litre	volume	m ³ /1000
lm	lumen	luminous flux	cd·sr
lx	lux	illuminance	lm/m ²
m	metre	length	base unit
mol	mole	amount of substance	base unit
N	newton	force	kg·m/s ²
Ω	ohm	electric resistance	V/A
Pa	pascal	pressure, stress	N/m ²
rad	radian	plane angle	m/m (dimensionless)
S	siemens	electric conductance	A/V
Sv	sievert	dose equivalent	J/kg
s	second	time	base unit
sr	steradian	solid angle	m ² /m ² (dimensionless)
T	tesla	magnetic flux density	Wb/m ²
t	tonne, metric ton	mass	1000 kg; Mg
V	volt	electric potential	W/A
W	watt	power, radiant flux	J/s
Wb	weber	magnetic flux	V·s

* allowed with SI

Use of Symbols

The correct use of symbols is important because an incorrect symbol may change the meaning of a quantity. Some SI symbols are listed in the Symbol table.

SI has no abbreviations—only symbols. Therefore, no periods follow a symbol except at the end of a sentence.

Examples: A, not amp; s not sec; SI, not S.I.

Symbols appear in lower case unless the unit name has been taken from a proper name. In this case the first letter of the symbol is capitalized.

Examples: m, metre; Pa, pascal; W, watt

Exception: L, litre

Symbols and prefixes are printed in upright (roman) type regardless of the type style in surrounding text.

Example: . . . a distance of 73 km between . . .

Unit symbols are the same whether singular or plural.

Examples: 1 mm, 100 mm; 1 kg, 65 kg

Leave a space between the value and the symbol.

Examples: 115 W, not 115W; 0.75 L, not 0.75L
88 °C, not 88°C or 88° C

Exception: No space is left between the numerical value and symbol for degree of plane angle.

Examples: 73°, not 73.°

Note: Symbol for coulomb is C; for degree Celsius it is °C

Do not mix symbols and names in the same expression.

Examples: radians per second or rad/s,
not radians/second; not radians/s
m/s or metres per second,
not metres/second; not metres/s
J/kg or joules per kilogram,
not joules/kilogram; not joules/kg

Symbol for product—use the raised dot (·)

Examples: N·m; mPa·s; W/(m²·K)

Symbol for quotient—use one of the following forms:

Examples: m/s or m/s or use the negative exponent

Note: Use only one solidus (/) per expression and parentheses to avoid any ambiguity.

PREFIXES

Most prefixes indicate orders of magnitude in steps of 1000 and provide a convenient way to express large and small numbers and to eliminate nonsignificant digits and leading zeroes in decimal fractions.

Examples: 64 000 watts is the same as 64 kilowatts*
0.057 metre is the same as 57 millimetres
16 000 metres is the same as 16 kilometres*
*except for intended accuracy

Prefix	Symbol	Represents
yotta	Y	10^{24}
zetta	Z	10^{21}
exa	E	10^{18}
peta	P	10^{15}
tera	T	10^{12}
giga	G	10^9
mega	M	10^6
kilo	k	10^3
hecto	h*	10^2
deka	da*	10^1
deci	d*	10^{-1}
centi	c*	10^{-2}
milli	m	10^{-3}
micro	μ	10^{-6}
nano	n	10^{-9}
pico	p	10^{-12}
femto	f	10^{-15}
atto	a	10^{-18}
zepto	z	10^{-21}
yocto	y	10^{-24}
	* allowed with SI	

To realize the full benefit of the prefixes when expressing a quantity by numerical value, choose a prefix so that the number lies between 0.1 and 1000. For simplicity, give preference to prefixes representing 1000 raised to an integral power (i.e., mm, μ m, km).

**Exceptions:* In expressing area and volume, the prefixes hecto, deka, deci, and centi may be required; for example, cubic decimetre (L), square hectometre (hectare), cubic centimetre.

Tables of values of the same quantity.

Comparison of values.

For certain quantities in particular applications. For example, the millimetre is used for linear dimensions in architectural and engineering drawings even when the values lie far outside the range of 0.1 mm to 1000 mm; the centimetre is usually used for anatomical measurements and clothing sizes.

Compound Units. A compound unit is a derived unit expressed with two or more units. The prefix is attached to a unit in the numerator.

Examples: V/m not mV/mm

MJ/kg not kJ/g

Compound prefixes formed by a combination of two or more prefixes are not used. Use only one prefix.

Examples: 2 nm not 2 m μ m;
6 m³ not 6 kL;
6 mPa not 6 kPa

Exponential Powers. An exponent attached to a symbol containing a prefix indicates that the multiple (of the unit with its prefix) is raised to the power of 10 expressed by the exponent.

Examples: 1 mm³ = (10⁻³ m)³ = 10⁻⁹ m³
1 ns⁻¹ = (10⁻⁹ s)⁻¹ = 10⁹ s⁻¹
1 mm²/s = (10⁻³ m)²/s = 10⁻⁶ m²/s

NUMBERS

International practice separates the digits of large numbers into groups of three, counting from the decimal to the left and to the right, and inserts a space to separate the groups. In numbers of four digits, the space is not necessary except for the uniformity in tables.

Examples: 6.358 568; 85 365; 51 845 953; 88 000;
0.246 113 562; 7 258

Small Numbers. When writing a number between one and minus one, put a zero before the decimal marker.

Note: This applies to large numbers which have an exponent: as -0.1×10^6 . This rule is given colloquially as "never use a naked decimal point."

Decimal Marker. The recommended decimal marker is a dot on the line (period). (In some countries, a comma is used as the decimal marker.)

Because **billion** means a million million in most countries but a thousand million in the United States, avoid using billion in technical writing.

DO'S AND DON'TS

The units in the international system of units are called SI units—not Metric Units and not SI Metric Units.

Non-SI units include inch-pound units, old metric units and many other units. Inch=pound units (IP) refers to sets of units which contain inches and pounds. These include so-called customary units, US customary units, conventional units, imperial units, and English units.

Treat all spelled out names as nouns. Therefore, do not capitalize the first letter of a unit except at the beginning of a sentence or in capitalized material such as a title.

Examples: watt; pascal; ampere; volt; newton; kelvin
Exception: Always capitalize the first letter of Celsius.

Do not begin a sentence with a unit symbol—either rearrange the unit names or write the unit name in full.

Use plurals for spelled out unit names when required by the rules of grammar.

Examples: metre—metres; henry—henries;
kilogram—kilograms; kelvin—kelvins
Irregular: hertz—hertz; lux—lux; siemens—siemens

Do not put a space or hyphen between the prefix and unit name.

Examples: kilometre *not* kilo metre or kilo-metre;
milliwatt *not* milli watt or milli-watt

When a prefix ends with a vowel and the unit name begins with a vowel, retain and pronounce both vowels.

Example: kiloampere

Exceptions: hectare; kilohm; megohm

When a derived unit name is formed by multiplication, leave a space between units that are multiplied.

Examples: newton metre, *not* newton-metre;
volt ampere, *not* volt-ampere

Use the modifier squared or cubed after the unit name.

Example: metre per second squared
Exception: For area or volume the modifier may be placed before the units.

Example: square millimetre; cubic metre

When derived units are formed by division, use the word *per*, not a solidus (/).

Examples: metre per second, *not* metre/second; watt per square metre, *not* watt/square meter

SELECTED CONVERSION FACTORS

CAUTION: These conversion values are rounded to three or four significant figures, which is sufficiently accurate for most applications. When making conversions, remember that a converted value is no more precise than the original value. Round off the final value to the same number of significant figures as those in the original value. See ANSI SI 10 for additional conversions with more significant figures.

<i>Multiply</i>	<i>By</i>	<i>To Obtain</i>
acre	0.4047	ha
atmosphere, standard	*101.325	kPa
bar	*100	kPa
barrel (42 US gal, petroleum)	159	L
Btu, (International Table)	1.055	kJ
Btu/lb-°F (specific heat, C ^p)	4.184	kJ/(kg-K)
bushel	0.03524	m ³
calorie, kilogram (kilocalorie)	4.187	kJ
candle, candlepower	*1.0	cd
centipoise, dynamic viscosity, μ	*1.00	mPa-s
centistokes, kinematic viscosity, ν	*1.00	mm ² /s
ft	*0.3048	m
ft	*304.8	mm
ft/min, fpm	*0.00508	m/s
ft/s, fps	*0.3048	m/s
ft of water	2.99	kPa
ft ²	0.09290	m ²
ft ² /s, kinematic viscosity, ν	92 900	mm ² /s
ft ³	28.32	L
ft ³	0.02832	m ³
ft ³ /h, cfh	7.866	mL/s
ft ³ /min, cfm	0.4719	L/s
ft ³ /s, cfs	28.32	L/s
footcandle	10.76	lx
ft-lb _t (torque or moment)	1.36	N-m
ft-lb _t (work)	1.36	J
ft-lb/lb (specific energy)	2.99	J/kg
ft-lb/min (power)	0.0226	W
gallon, US (*231 in ³)	3.785	L
gph	1.05	mL/s
gpm	0.0631	L/s
gpm/ft ²	0.6791	L/(s-m ²)
gr/gal	17.1	g/m ³
horsepower (550 ft-lb/s)	0.746	kW
inch	*25.4	mm
in of mercury (60°F)	3.377	kPa

<i>Multiply</i>	<i>By</i>	<i>To Obtain</i>
in of water (60°F)	248.8	Pa
in-lb _f (torque or moment)	113	mN·m
in ²	645	mm ²
in ³ (volume)	16.4	mL
in ³ (section modulus)	16 400	mm ³
in ⁴ (section moment)	416 200	mm ⁴
km/h	0.278	m/s
kWh	*3.60	MJ
kip/in ² (ksi)	6.895	MPa
litre	*0.001	m ³
micron (μm) of mercury (60°F)	133	mPa
mil (0.001 in.)	*25.4	mm
mile	1.61	km
mile, nautical	1.85	km
mph	1.61	km/h
mph	0.447	m/s
millibar	*0.100	kPa
mm of mercury (60°F)	0.133	kPa
mm of water (60°F)	9.80	Pa
ounce (mass, avoirdupois)	28.35	g
ounce (force of thrust)	0.278	N
ounce (liquid, US)	29.6	mL
ounce (avoirdupois) per gallon	7.49	kg/m ³
pint (liquid, US)	473	mL
pound		
lb _m (mass)	0.4536	kg
lb _m (mass)	453.6	g
lb _f (force or thrust)	4.45	N
lb _m /ft (uniform load)	1.49	kg/m
lb _m /(ft·h) (dynamic viscosity, μ)	0.413	mPa·s
lb _m /(ft·s) (dynamic viscosity, μ)	1490	mPa·s
lb _s /ft ² (dynamic viscosity, μ)	47 880	mPa·s
lb _m /min	0.00756	kg/s
lb _m /h	0.126	g/s
lb _f /ft ²	47.9	Pa
lb _m /ft ²	4.88	kg/m ²
lb _m /ft ³ (density, ρ)	16.0	kg/m ³
lb _m /gallon	120	kg/m ³
ppm (by mass)	*1.00	mg/kg
psi	6.895	kPa
quad (10 ¹⁵ Btu)	1.06	EJ
quart (liquid, US)	0.946	L
rpm	0.105	rad/s
tablespoon (approx.)	15	mL
teaspoon (approx.)	5	mL
therm (100,000 Btu)	105.5	MJ
ton, short (2000 lb)	0.907	Mg; t (tonne)
yd	*0.9144	m
yd ²	0.836	m ²
yd ³	0.7646	m ³

* Conversion factor is exact.

Note: In this list the kelvin (K) expresses temperature intervals. The degree Celsius symbol (C) may be used for this purpose as well

Summary of Changes

The following changes were made since the March 2014 edition and published in this edition.

- (1) Revised Sections G3.6, G24.1, and H1.2.2 to reference IEEE SI 10, the SI Quick Reference Guide, and Part G and Part H. The ASTM Form and Style is the default document for formatting so that the spelling of litre and metre can be maintained.
- (2) Revised G14.1 and G18.3.3 to reflect using space rather than hyphen for compound adjectives using SI units.
- (3) Added the SI Quick Reference Guide to the Form and Style Manual as Annex A.
- (4) General revisions were made to reflect current practices.

The following changes were made since the October 2013 edition and published in this edition.

- (1) Added F2.6, Mercury Caveat.

The following changes were made since the March 2013 edition and published in this edition.

- (1) Revised Section F1 on Commercial-Contractual Items in Standards.
- (2) Editorially revised Section G12 on Creating and Submitting Figures for Ballot

The following changes were made since the October 2012 edition and published in this edition.

- (1) Editorially revised B22.1 on Product Marking.

The following changes were made since the March 2012 edition and published in this edition.

- (1) Revised Section A21 on Precision and Bias.

The following changes were made since the October 2011 edition and published in this edition.

- (1) Clarified use of the term “dictionary” to mean print or electronic reference materials in A7.1.1, E2.1, E3.3.1, E5.9, G10.1, G15.1.5, and G25.1.
- (2) Editorially updated ASTM standards references in A17.1, A19.2, and the table in G3.6 (Vickers Hardness number)

The following changes were made since the October 2010 edition and published in this edition.

- (1) Clarified language in Section F1.
- (2) Revised Ordering Information, B9.3, to focus on the importance of referenced documents within a specification, and to encourage the use of year dates.
- (3) Editorially changed A27.4 and A29.4 to correct a reference in the [Regulations Governing ASTM Technical Committees](#).
- (4) Editorially updated the title of IEEE/ASTM SI-10 in G3.6.

The following changes were made since the March 2010 edition and published in this edition.

- (1) Editorially removed reference to ANSI Y10.3M in A19.1 since it was withdrawn without replacement.
- (2) Revised D4 with the addition of D4.1.2 to modify language on the current editorial practice for Supplementary Requirements.
- (3) Editorially changed E3.3.3 to update the referenced title to *ASTM Online Dictionary of Engineering Science and Technology*.
- (4) Revised F4.1 to include ASTM Certification Programs.

The following changes were made since the September 2009 edition and published in this edition.

- (1) Added “kerosene” as an acceptable spelling in G25.1.

The following changes were made since the March 2009 edition and published in this edition.

- (1) Revisions of A27.1 and B29.1 for better clarity.
- (2) Replaced G12 with a new procedure for creating and submitting figures for ballot.
- (3) Editorial changes were made to C2, C16, A26.4, and B28.4.

The following changes were made since the March 2008 edition and published in this edition.

- (1) Insertion of new sections F2.2.2.5 and F2.2.2.6 dealing with Fire Standards Safety Caveats.

SUMMARY OF CHANGES

The following changes were made since the October 2007 edition and published in this edition.

- (1) Revisions were made to Part G dealing with Styling, Electronic Manuscript Preparation, Abbreviations, Figures, Mathematical Material, and Thermometers.

The following changes were made since the October 2006 edition and published in this edition.

- (1) Removal of the ‘separated by a space’ requirement in standard designation numbers found in A3.1.2 and B4.1.2.
- (2) Insertion of new section G16.6.1 and an example for clarifying how to place a multiplication symbol in an equation.
- (3) Revision of G27.7 for better clarity.
- (4) Revision of H1.2.1 for better clarity, as well as to include a *Discussion* on the use of SI units in standards.
- (5) Reversal of the order of appearance of Sections H3 and H4.

The following changes were made since the March 2006 edition and published in this edition.

- (1) Insertion of a new section F4.1 to clarify ASTM’s policy on certification and accreditation.
- (2) Reversal of the order of appearance of the *Trademarks* section with the *Sources of Supply* section for a more logical flow.
- (3) Removal of the word *reference* where used as an adjective in the term *reference material* to expand this section to cover all materials – not just *reference materials*.
- (4) Insertion of new language as F4.2.2 to make trademark language consistent with [Regulations Governing ASTM Technical Committees](#) and Board Policy.

The following changes were made since the October 2005 edition and published in this edition.

- (1) Revisions were made to A21.4.1, A21.4.2, and A21.5.4 to clarify the intent of the language.
- (2) Sections A29 and B31 on Research Reports

were revised to make clearer the instructions on how the research report is to be referenced in a standard.

- (3) Revision to F2.4, Working Document Caveat, in order to remain consistent with ASTM policy.
- (4) Revisions were made to Sections F4 and F4.2 dealing with Use of Trademarks.

The following changes were made since the March 2005 edition and published in this edition.

- (1) Revision to Working Draft Caveat, F2.4, in order to remain consistent with ASTM policy.
- (2) Section G25.1, added (measurement, instrument) to “gauge” and deleted spelling “gage.”

The following changes were made since the September 2004 edition and published in this edition.

- (1) Section A18.3 was deleted. Including this section was redundant and could lead to confusion.
- (2) New Section H1.2.2.1 was added pertaining to rounding of SI Units.

The following changes were made since the April 2004 edition and published in this edition.

- (1) New Section A21.4.5 pertaining to precision and bias was added.
- (2) A revision was made in B1.2 for clarification.

The following changes were made since the September 2003 edition and published in this edition.

- (1) Revisions to A1.4 clarify how to identify different test methods within a standard.
- (2) New Section A22 on Measurement Uncertainty was added.
- (3) Revision to F1 was made and new Section F1.4 was added concerning effective dates.
- (4) Revisions were made to F3.1, F3.1.1, and F3.1.2 dealing with patents.

The following changes were made since the March 2003 edition and published in this edition.

SUMMARY OF CHANGES

- (1) The following sentence was added in B25.1.
“These should not include statements that would allow the lowering of minimum requirements of the standard (see B1.2).”
- (2) Megagram (Mg) was added to G3.6.

The following changes were made since the September 2002 edition and published in this March 2003 edition.

- (1) New definitions for “publication date” and “approval date” were added to p. viii on Definitions
- (2) Sections A31.3, B34.3, and C31.3 on Summary of Change Sections were revised to permit standards that have undergone multiple revisions in a short period of time to retain changes for 18 months.
- (3) The statement in A21.5.3 was revised to correct ambiguity in the requirement for precision and bias.

The following changes were made editorially since the March 2002 edition and are published in the September 2002 edition.

- (1) Replaced the verbiage “year of issue” and “date of issue” with “year date” throughout.
- (2) Standardized the terms “purchase order or contract” in Part B.
- (3) An additional sentence was included in F3.1 regarding the ANSI patent policy.

The sections shown below have been editorially changed since the October 2001 edition and are published in the March 2002 edition.

- (1) Section G2 on Electronic Manuscript Preparations was replaced.
- (2) Additional sentences were included in the suggested statement in B21.2.

The following changes were made since the March 2001 edition and published in the October 2001 edition.

- (1) Deletion of A3.1.3 and A5.4 regarding companion standards. The same changes were made to B4.1.3 and B4.4.1
- (2) Mandatory for Standards Producing Numerical Results was added to the heading of Section A29 on Research Reports.
- (3) New section F2.2.2.4 dealing with a fire risk assessment statement.
- (4) Deletion of G24.2 dealing with companion standards.

The following changes were made since the February 2000 edition and are published in the March 2001 edition.

- (1) Revisions to Section B21 on Certification.

The following changes were made since the December 1998 edition and are published in the February 2000 edition.

- (1) Revision to Section A13 to revised A13.1.1 on Warning Statement, delete A13.1.2 on Precautionary Statement, and delete A13.2 on Technical Hazards. Revise F2.1.2 and F2.1.3 to eliminate wording dealing with precautionary statements.

The following changes were made since the January 1996 edition and published in the December 1998 edition.

- (1) Revision to Part H dealing with the use of SI units in ASTM standards. Revision to G38. These were the results from Circular Letter #713.
- (2) Added new F2.5 Professional Judgment Caveat.

Index

- Abbreviations, E6.1.3, E14, G3. *See also* Symbols
 - order in a definition, E4.5
 - in terminology standard, E1.4, E5.1
- Accuracy. *See* bias
- Acronyms, E6.1.2, E14
- Adjectives, qualitative, E3.2.3
- Adjuncts, A28, B30
- Alloy designations, G4
- And/or alternative style for, G5
- Annexes, A24, B26, E16
 - equation numbering, D7.2
 - figure numbering, D9.2
 - note numbering, D10.2
 - placement, designation, and section numbering, D6
 - in specifications, B26.3
 - table numbering, D8.2
 - in terminology standards, E16
 - in test methods, A24.3
- Apparatus
 - calibration and adjustment, A16.1
 - preparation of, A15, A24.3.6
 - sources of supply, A26.4, B28.4, F4.1
 - trademarks, F4.2
- Apparatus section, A11
- Appendixes, A24, B26, E16
 - equation numbering, D7.2
 - figure numbering, D9.2
 - note numbering, D10.2
 - placement, designation, and section numbering, D6
 - rationale (commentary), A30, B32, C30
 - in specifications, B26.4
 - table numbering, D8.2
 - in terminology standards, E16
 - in test methods, A24.4
- Applicable documents section. *See* Referenced documents section, A6, B6, C6, C20
- ASTM standards, citation of, G21, G22
- Attributions, E5.9, E13.1.4
 - order in a definition, E4.5
- Basis of classification section, C9
- Bias, A21
- Bibliography, in a terminology standard, E16
- Calculation section, A19.1
- Calibration and standardization section, A16
- Capitalization, G6
- Caveat statements, F2
 - fire hazard caveat, F2.2
 - general caveat, F2.3
 - mercury caveat, F2.6
 - patent caveat, F3.2
 - policy caveats, F2
 - safety hazards caveat, A13, F2.1
 - working document caveat, F2.4
- Certification section, B21
- Chemical composition section, B11
- Chemical formulas, G7, G15.1.3
- Classification section, B8
- Classification standards, C1-C14
- Combined standards A3.4, B4.4, B9.4, G22.2, G24.2, H2.4, H2.4.2, H3.1.2, H3.1.2.2, H3.1.2.3
- Commentary section, A30, B32, C30
- Committee jurisdiction, A26.2, B28.2
- Compilation of ASTM Standard Terminology*, E3.3.3
- “Compression” vs. “compressive,” G28
- Concepts, terminology,
 - discussions, E4.4, E5.8
- Conditioning section, A17
- Contractual items, F1
- Contractual parties, G8
- Cross-references, terminology, E5.7, E13.1.2
- Crystal planes and directions, G9
- Decimal numbering system, for document sections, D1-D16
- Definitions, A7.2, B7, C7, C21
 - adjectives, E3.2.3
 - brevity, E4.2, E4.4
 - common-language (dictionary), E3.3.1, E5.9
 - context and clarity, E3.3.1, E4.2
 - distinction between definitions of terms, E2
 - elements, E5
 - example of, E2.1.1
 - form and style, E4, E13
 - guidelines for writing, E3
 - limitations, E5.5, E5.6
 - new, E4
 - nouns (also formulas and quantities), E3.2.3, E3.2.4
 - redundancy, E4.3

INDEX

- scope, E10
- Definitions of terms, A7.2.3
- distinctions between definitions, E2
- example of, E2.1.2
- form and style, E4
- guidelines for writing, E3
- in specification limits, E5.6
- Delimiting phrases, in terminology, E5.5
- in specification limits, E5.6
- order in definition, E4.5
- Designation, A3, B4
- Dictionaries, G10
- Dictionary definitions, E3.3.1, E5.9
- Dilution ratio, G11
- Dimensions, B13
- and symbols, G26
- Dimensions, in terminology, E5.3
- order in definition, E4.5
- Disclaimer of liability as to patented inventions, A27.4, B29.4, F3.2
- Discussions, in terminology, E5.8
- order in definition, E5.8
- in terminology standards, E13.1.3
- Drawings. *See* Figures and figure captions
- Equations, D7, G16.6
- Exponents, G16.6
- Figures and figure captions,
- form and style, G12
- italics in, G15.1.2, G15.1.3, G15.1.6
- note numbering, D10.3
- numbering, D9
- Fire hazard caveat, F2.2
- Fire standards, F2.2
- “Flexure” vs. “flexural,” G28
- Footnotes, A26, B28, D11, G13
- in tables, D11.2, G13.1
- Foreign terms, G15.1.5
- Formulas, chemical. *See* Chemical formulas
- Fractions, G14.3, G16.7
- General caveat, F2.3
- Graphs. *See* Figures and figure captions
- Grouped terms, in terminology, E13.1.1
- Guides, C15-C31
- Hazards section, A13
- History of a standard, A26.2, A30, B28.2, B32, C30
- Hyphens, G14
- Illustrations. *See* Figures and figure captions
- Index terms, A23, B24, C28, E15. *See also* Key-words
- Inspection section, B19
- Interferences section, A10
- Interpretation of results section, A19.2
- Introduction section, A4
- Isotopes, G7
- Italics, G15
- Keywords, A23, B24, C28, E15. *See also* Index terms
- Legends. *See* Figures and figure captions
- Liability disclaimer as to patented inventions, A27.4, B29.4, F3.2
- Literature references, A25, A26.3, B27, B28.3, G21
- bibliography, in a terminology standard, E16
- Magnification, G12.8
- Manuscript preparation, G2
- Marking section, B22
- Mass, B13
- Materials and manufacture section in specifications, B10
- Materials and reagents in test methods, A12
- Mathematical material, G16
- Measurement Uncertainty, A22
- Measurement units, in terminology
- order in a definition, E4.5
- Mechanical requirements section, B12
- Mercury Caveat, F2.6
- Modified Decimal Numbering (MDN) System, for document sections, D1-D16
- Nomenclature, chemical, G7
- Notes, A27, B29, D10, G27.6
- Nouns, in terminology, E3.2.3
- Number of tests and retests section, B16
- Numbering system, Modified Decimal (MDN), of document sections, D1-D16
- Numerals, G18
- Ordering information section, B9, B25

INDEX

Packaging section, B23
 Parts of speech, in terminology, E5.4
 order in definition, E4.5
 Patent caveat, F3.2
 Patents, A27.4, B29.4, F3
 Percent and percentage points, G19
 Performance requirements section, B12
 Permissible variations section, B13
 Photographs. *See* Figures, G12
 Photomicrographs. *See* Figures, G12.8
 Physical requirements section, B12
 “Point” System. *See* Modified Decimal Numbering (MDN) System, D1-D16
 Policy caveats, F2
 Fire hazard, F2.2
 General, F2.3
 Mercury, F2.6
 Patent, F3.2
 Safety hazard, A13, F2.1
 Working document, F2.4
 Polymers, G20
 Powers of 10, G27.3
 Practices, C15-C31
 Precautions section. *See* Hazards section
 Precision and bias section, A21
 Preparation of apparatus section, A15, A24.3.6

 Quotations, G21

 Ranges of measured quantities, B13
 Rationale, A30, B32, C30
 Ratios, G18.5
 Reagents and materials section, A12
 Redundancy, of terminology, E3.3
 Reference publications, G21
 Reference standards in test methods, A16.2
 Referenced documents section, A6, B6, C6, C20, E11
 References, literature, A25, A26.3, B27, B28.3, G21
 bibliography, in a terminology standard, E16
 Rejection and rehearing section, B20
 Report section, A20
 Research Reports, A26.5, A29, B28.5, B31
 Revision of standards, manuscript preparation, G2

 Safety hazards caveat, A13, F2.1
 Safety precautions section. *See* Hazards section

 Samples and specimens, A14, B17, G23
 Sampling section, A14, B15
 Scope section, A5, B5, C5, C19
 SI combined standard, A3.4, B4.4, H3.1.2
 SI conversion, G24, H1-H2.3
 SI units,
 adding to existing standards, H3
 in tables, H6
 terminology, for ASTM use, H2
 in text, H3, H4
 rounding, H1.2.2.1
 Significance and use section, A9, C8, C23
 Size ranges, B13
 Sources of supply, A26.4, B28.4, F4
 Specification limits, E5.6
 order in definition, E4.5
 See also Delimiting phrases
 Specifications,
 adjuncts, B30
 analytical test methods section, B18
 annexes, B26.3
 apparatus sources, B28.4
 appendixes, B26.4
 applicable documents. *See* Referenced documents section
 certification section, B21
 chemical composition section, B11
 classification section, B8
 committee jurisdiction, B28.2
 designation, B4
 dimensions, mass, and permissible variations section, B13
 footnotes, B28
 functions, B1
 history, B28.2
 inspection section, B19
 keywords section, B24
 literature references, B27, B28.3
 mass, B13
 materials and manufacture section, B10
 mechanical requirements, B12.3
 notes, B29
 number of tests and retests section, B16
 ordering information section, B9
 packaging and package marking section, B23
 part-numbering system, B33
 patent disclaimer of liability note, B29.4, F3.2
 performance requirements, B12.4

INDEX

- permissible variations of measured quantities, B13
- physical requirements, B12.2
- product marking section, B22
- rationale (commentary), B32
- referenced documents section, B6
- references section, B27, B28.3
- rejection and rehearing section, B20
- research reports, B28.5, B31
- sampling section, B15
- scope section, B5
- size ranges, B13
- specimen preparation section, B17
- subject headings, B2
- supplementary requirements, B25, D4
- symbols, A2.4, B7, E1.1
- terminology section, B7. *See also* Definitions and Definitions of terms
- test methods section, B18
- title, B3
- workmanship, finish, and appearance section, B14
- Specimens and samples, A14, B17, G23
- Spelling, G25
- Standards of other organizations, F5
- Statistical data, G16.8
- Subject headings, A1, B2, C2, C16, E7
- Subscripts, G16.3, G16.7
- Summary of changes, A31, B34, C14, C31, E18
- Summary of practice session, C22
- Summary of test method section, A8
- Supplementary requirements, B25, D4
- Symbols,
 - for crystal planes and directions, G9
 - in definitions, E5.2, E6
 - order in definition, E4.5
 - in separate section, A7.2.4, G3, G26
 - for statistical data, G16.8.3
 - in terminology, E6.1.1, E14
 - for units, G3
 - use of italics, G15.1.1
 - See also* Abbreviations
- Tables,
 - footnotes, D11.2, G13.1
 - numbering, D8
 - powers of 10 in, G27.3
 - SI units in, H6
 - style, G27
- “Tension” vs. “tensile,” G28.2
- Term, E1-E14
- Terminology, A7, B7, C7, C21, E1-E18
 - Compilation of ASTM Standard Terminology*, E3.3.3
 - coordination and management, E1
 - defined, Introduction to Part E
 - delimiting phrases, E5.5
 - objectives, Introduction to Part E
 - specification limits, E5.6. *See also* delimiting phrases
 - usage, Introduction to Part E
- Terminology standards, E7-E18
 - appendixes, E16
 - bibliography, E17
 - content and technical committee responsibilities, Introduction to Part E, E1
 - dictionary definitions, E3.3.1
 - format and subject headings, E7
 - parts of speech, E5.4
 - purpose, E1
 - referenced documents, E11
 - SI units, H3
 - significance and use, E12
 - term grouping, E13.1.1
 - title, E8
- Terms, E2, E5
 - abbreviations, E5.1, E6.1.3, E14
 - absolute, E3.2.3
 - acronyms, E6.1.2, E14
 - adjectives, E3.2.3
 - attributions, E5.9, E13.1.4
 - bibliography, E17
 - cross-references, E5.7, E13.1.2
 - definitions, A7.2.1, E1, E2, E3, E4, E13
 - definitions of terms, A7.2.3, E1, E2, E3, E4, E13
 - dimensions, E5.3
 - keywords (index terms), A23, B24, C28, E15
 - limitations, E5.5, E5.6
 - nouns, E3.2.3
 - order in definitions, E4.5
 - parts of speech, E5.4
 - qualitative, E3.2.3
 - quantitative, E3.2.4
 - redundancy, E3.3
 - symbols, E5.2, E6.1.1, E14
 - term grouping, E13.1.1

INDEX

within a standard, E2-E5
Test methods,
adjuncts, A28
annexes, A24.3
apparatus preparation section, A15
apparatus section, A11
apparatus sources, A26.4
appendixes, A24.4
applicable documents. *See* Referenced documents section
bias statement, A21.3
calculation section, A19.1
calibration and standardization section, A16
committee jurisdiction, A26.2
conditioning section, A17
designation, A3
footnotes, A26
hazards section, A13
history, A26.2
interferences section, A10
interpretation of results section, A19.2
introduction section, A4
keywords section, A23
literature references, A25, A26.3
measurement uncertainty section, A22
notes, A27
patent disclaimer of liability note, A27.4
precautions section. *See* Hazards section
precision statement, A21.2
preparation of apparatus section, A15
reagents and materials section, A12
reference standards, A16.2
referenced documents section, A6
references section, A25, A26.3
report section, A20
research reports, A26.5, A29
safety precautions section. *See* Hazards section
sampling section, A14
scope section, A5
significance and use section, A9
subject headings, A1
summary of test method section, A8
symbols, A7.2.4
terminology section, A7, E3-E5. *See also* Definitions and Definitions of Terms
test specimen and sample section, A14
trademarks, A11.2, A12.4
Test methods section of specifications, B18
Thermal conductivity unit, G29
Thermometers, referencing, G30
Titles, A2, B3, C3, C17
Tolerances, G26.1
Trademarks, A11.2, A12.4, F4.2, G6.5, G31
Transistor type, G15.1.6

Unit symbols, G3

Working document caveat, F2.4
Workmanship, finish, and appearance section, B14

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 106 of 267

EXHIBIT 6

NOTICE: This standard has been superseded and replaced by 110/150 Page 107 of 267
 Case: 110/150-115C Document ID: 1982413
 Contact ASTM International (www.astm.org) for the latest information



Designation: D 86 – 07

An American National Standard

Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure¹

This standard is issued under the fixed designation D 86; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This test method covers the atmospheric distillation of petroleum products using a laboratory batch distillation unit to determine quantitatively the boiling range characteristics of such products as light and middle distillates, automotive spark-ignition engine fuels, aviation gasolines, aviation turbine fuels, 1-D and 2-D regular and low sulfur diesel fuels, special petroleum spirits, naphthas, white spirits, kerosines, and Grades 1 and 2 burner fuels.

1.2 The test method is designed for the analysis of distillate fuels; it is not applicable to products containing appreciable quantities of residual material.

1.3 This test method covers both manual and automated instruments.

1.4 Unless otherwise noted, the values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information only.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 All standards are subject to revision, and parties to agreement on this test method are to apply the most recent edition of the standards indicated below, unless otherwise specified, such as in contractual agreements or regulatory rules where earlier versions of the method(s) identified may be required.

2.2 ASTM Standards:²

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.08.0A on Distillation.

In the IP, the equivalent test method is published under the designation IP 123. It is under the jurisdiction of the Standardization Committee.

Current edition approved Jan. 15, 2007. Published February 2007. Originally approved in 1921. Last previous edition approved in 2005 as D 86–05.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

- D 97 Test Method for Pour Point of Petroleum Products
- D 323 Test Method for Vapor Pressure of Petroleum Products (Reid Method)
- D 2892 Test Method for Distillation of Crude Petroleum (15-Theoretical Plate Column)
- D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products
- D 4177 Practice for Automatic Sampling of Petroleum and Petroleum Products
- D 4953 Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method)
- D 5190 Test Method for Vapor Pressure of Petroleum Products (Automatic Method)
- D 5191 Test Method for Vapor Pressure of Petroleum Products (Mini Method)
- D 5842 Practice for Sampling and Handling of Fuels for Volatility Measurement
- D 5949 Test Method for Pour Point of Petroleum Products (Automatic Pressure Pulsing Method)
- D 5950 Test Method for Pour Point of Petroleum Products (Automatic Tilt Method)
- D 5985 Test Method for Pour Point of Petroleum Products (Rotational Method)
- E 1 Specification for ASTM Liquid-in-Glass Thermometers
- E 77 Test Method for Inspection and Verification of Thermometers
- E 1272 Specification for Laboratory Glass Graduated Cylinders
- E 1405 Specification for Laboratory Glass Distillation Flasks
- 2.3 *Energy Institute Standards:*³
- IP 69 Determination of Vapour Pressure—Reid Method
- IP 123 Petroleum Products—Determination of Distillation Characteristics
- IP 394 Determination of Air Saturated Vapour Pressure
- IP Standard Methods for Analysis and Testing of Petroleum and Related Products 1996—Appendix A

³ Available from Energy Institute, 61 New Cavendish St., London, W1G 7AR, U.K., <http://www.energyinst.org.uk>.

*A Summary of Changes section appears at the end of this standard.

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D 86 – 07

TABLE 1 Preparation of Apparatus

	Group 1	Group 2	Group 3	Group 4
Flask, mL	125	125	125	125
ASTM distillation thermometer	7C (7F)	7C (7F)	7C (7F)	8C (8F)
IP distillation thermometer range	low	low	low	high
Flask support board	B	B	C	C
diameter of hole, mm	38	38	50	50
Temperature at start of test				
Flask °C	13–18	13–18	13–18	not above
° F	55–65	55–65	55–65	ambient
Flask support and shield	not above	not above	not above	
ambient		ambient	ambient	
Receiving cylinder and 100 mL charge				
°C	13–18	13–18	13–18 ^A	13–ambient ^A
° F	55–65	55–65	55–65 ^A	55–ambient ^A

^A See 10.3.1.1 for exceptions.

3. Terminology

3.1 Definitions:

3.1.1 *charge volume, n*—the volume of the specimen, 100 mL, charged to the distillation flask at the temperature specified in Table 1.

3.1.2 *decomposition, n*—of a hydrocarbon, the pyrolysis or cracking of a molecule yielding smaller molecules with lower boiling points than the original molecule.

3.1.2.1 *Discussion*—Characteristic indications of thermal decomposition are evolution of fumes and erratic temperature readings that usually decrease after any attempt is made to adjust the heat.

3.1.3 *decomposition point, n*—the corrected thermometer reading that coincides with the first indications of thermal decomposition of the liquid in the flask.

3.1.3.1 *Discussion*—The decomposition point, as determined under the conditions of this test method, does not necessarily correspond to the decomposition temperature in other applications.

3.1.4 *dry point, n*—the corrected thermometer reading that is observed at the instant the last drop of liquid (exclusive of any drops or film of liquid on the side of the flask or on the temperature sensor), evaporates from the lowest point in the distillation flask.

3.1.4.1 *Discussion*—The end point (final boiling point), rather than the dry point, is intended for general use. The dry point can be reported in connection with special purpose naphthas, such as those used in the paint industry. Also, it is substituted for the end point (final boiling point) whenever the sample is of such a nature that the precision of the end point (final boiling point) cannot consistently meet the requirements given in the precision section.

3.1.5 *dynamic holdup, n*—the amount of material present in the neck of the flask, in the sidearm of the flask, and in the condenser tube during the distillation.

3.1.6 *emergent stem effect, n*—the offset in temperature reading caused by the use of total immersion mercury-in-glass thermometers in the partial immersion mode.

3.1.6.1 *Discussion*—In the partial immersion mode, a portion of the mercury thread, that is, the emergent portion, is at a lower temperature than the immersed portion, resulting in a shrinkage of the mercury thread and a lower temperature reading.

3.1.7 *end point (EP) or final boiling point (FBP), n*—the maximum corrected thermometer reading obtained during the test.

3.1.7.1 *Discussion*—This usually occurs after the evaporation of all liquid from the bottom of the flask. The term maximum temperature is a frequently used synonym.

3.1.8 *front end loss, n*—loss due to evaporation during transfer from receiving cylinder to distillation flask, vapor loss during the distillation, and uncondensed vapor in the flask at the end of the distillation.

3.1.9 *initial boiling point (IBP), n*—the corrected thermometer reading that is observed at the instant the first drop of condensate falls from the lower end of the condenser tube.

3.1.10 *percent evaporated, n*—the sum of the percent recovered and the percent loss.

3.1.11 *percent loss (or observed loss), n*—one hundred minus the percent total recovery.

3.1.11.1 *corrected loss, n*—percent loss corrected for barometric pressure.

3.1.12 *percent recovered, n*—the volume of condensate observed in the receiving cylinder, expressed as a percentage of the charge volume, associated with a simultaneous temperature reading.

3.1.13 *percent recovery, n*—the maximum percent recovered, as observed in accordance with 10.18.

3.1.13.1 *corrected percent recovery, n*—the percent recovery, adjusted for the difference between the observed loss and the corrected loss, as described in Eq 8.

3.1.13.2 *percent total recovery, n*—the combined percent recovery and residue in the flask, as determined in accordance with 11.1.

3.1.14 *percent residue, n*—the volume of residue in the flask, measured in accordance with 10.19, and expressed as a percentage of the charge volume.

3.1.15 *rate of change (or slope), n*—the change in temperature reading per percent evaporated or recovered, as described in 13.2.

3.1.16 *temperature lag, n*—the offset between the temperature reading obtained by a temperature sensing device and the true temperature at that time.

3.1.17 *temperature measurement device, n*—a thermometer, as described in 6.3.1, or a temperature sensor, as described in 6.3.2.



D 86 – 07

3.1.18 *temperature reading, n*—the temperature obtained by a temperature measuring device or system that is equal to the thermometer reading described in 3.1.19.

3.1.18.1 *corrected temperature reading, n*—the temperature reading, as described in 3.1.18, corrected for barometric pressure.

3.1.19 *thermometer reading (or thermometer result), n*—the temperature of the saturated vapor measured in the neck of the flask below the vapor tube, as determined by the prescribed thermometer under the conditions of the test.

3.1.19.1 *corrected thermometer reading, n*—the thermometer reading, as described in 3.1.19, corrected for barometric pressure.

4. Summary of Test Method

4.1 Based on its composition, vapor pressure, expected IBP or expected EP, or combination thereof, the sample is placed in one of four groups. Apparatus arrangement, condenser temperature, and other operational variables are defined by the group in which the sample falls.

4.2 A 100-mL specimen of the sample is distilled under prescribed conditions for the group in which the sample falls. The distillation is performed in a laboratory batch distillation unit at ambient pressure under conditions that are designed to provide approximately one theoretical plate fractionation. Systematic observations of temperature readings and volumes of condensate are made, depending on the needs of the user of the data. The volume of the residue and the losses are also recorded.

4.3 At the conclusion of the distillation, the observed vapor temperatures can be corrected for barometric pressure and the data are examined for conformance to procedural requirements, such as distillation rates. The test is repeated if any specified condition has not been met.

4.4 Test results are commonly expressed as percent evaporated or percent recovered versus corresponding temperature, either in a table or graphically, as a plot of the distillation curve.

5. Significance and Use

5.1 The basic test method of determining the boiling range of a petroleum product by performing a simple batch distillation has been in use as long as the petroleum industry has existed. It is one of the oldest test methods under the jurisdiction of ASTM Committee D02, dating from the time when it was still referred to as the Engler distillation. Since the test method has been in use for such an extended period, a tremendous number of historical data bases exist for estimating end-use sensitivity on products and processes.

5.2 The distillation (volatility) characteristics of hydrocarbons have an important effect on their safety and performance, especially in the case of fuels and solvents. The boiling range gives information on the composition, the properties, and the behavior of the fuel during storage and use. Volatility is the major determinant of the tendency of a hydrocarbon mixture to produce potentially explosive vapors.

5.3 The distillation characteristics are critically important for both automotive and aviation gasolines, affecting starting, warm-up, and tendency to vapor lock at high operating

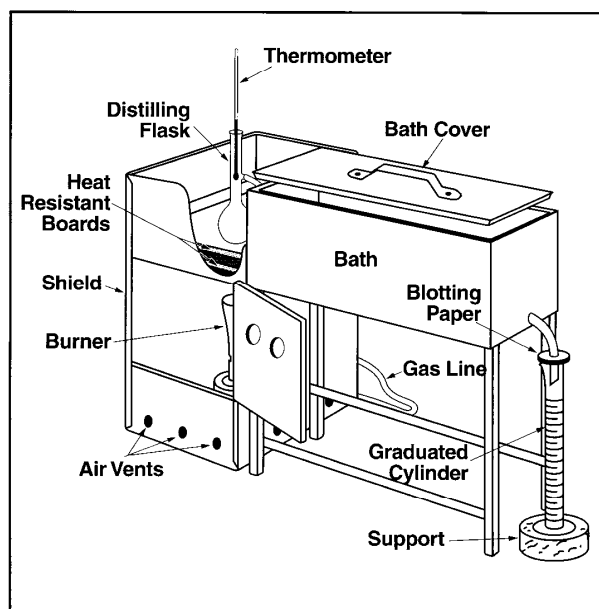


FIG. 1 Apparatus Assembly Using Gas Burner

temperature or at high altitude, or both. The presence of high boiling point components in these and other fuels can significantly affect the degree of formation of solid combustion deposits.

5.4 Volatility, as it affects rate of evaporation, is an important factor in the application of many solvents, particularly those used in paints.

5.5 Distillation limits are often included in petroleum product specifications, in commercial contract agreements, process refinery/control applications, and for compliance to regulatory rules.

6. Apparatus

6.1 Basic Components of the Apparatus:

6.1.1 The basic components of the distillation unit are the distillation flask, the condenser and associated cooling bath, a metal shield or enclosure for the distillation flask, the heat source, the flask support, the temperature measuring device, and the receiving cylinder to collect the distillate.

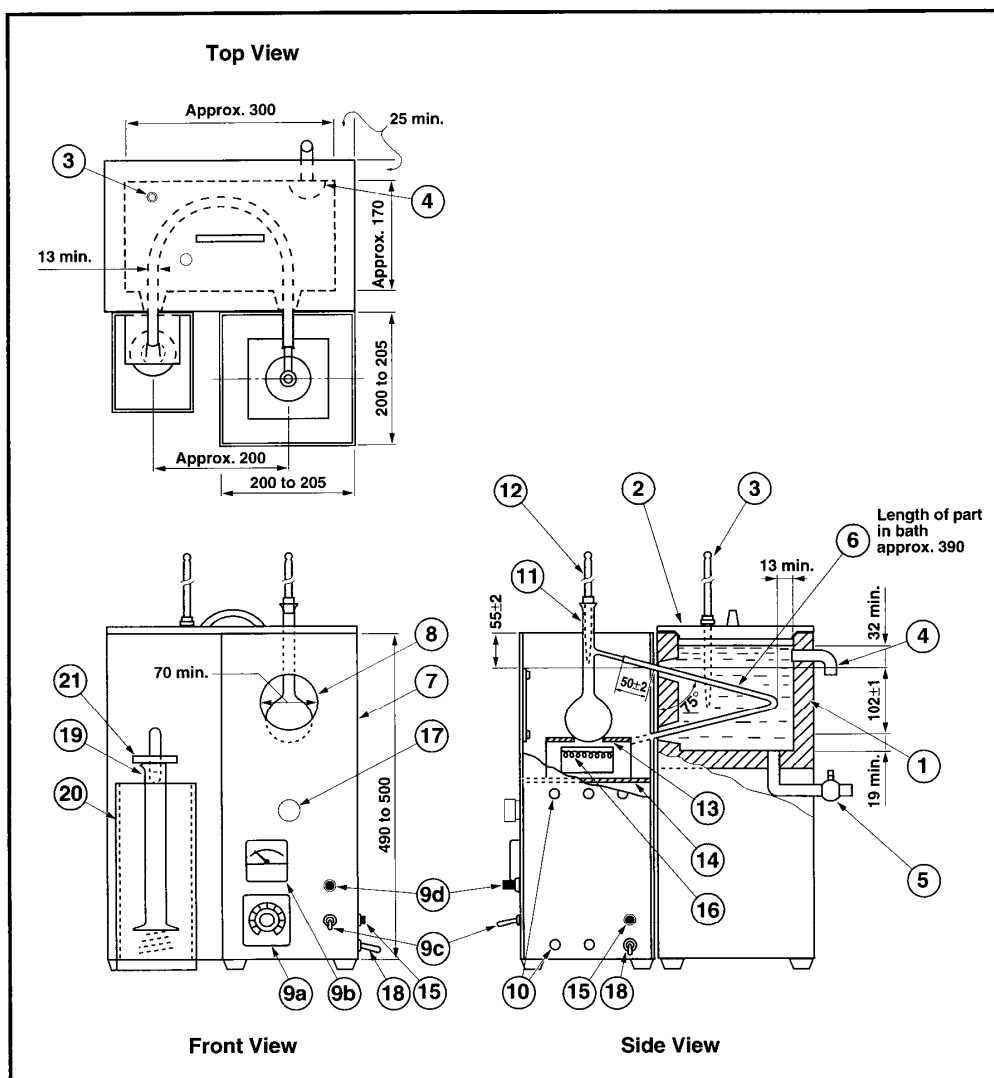
6.1.2 Figs. 1 and 2 are examples of manual distillation units.

6.1.3 In addition to the basic components described in 6.1.1, automated units also are equipped with a system to measure and automatically record the temperature and the associated recovered volume in the receiving cylinder.

6.2 A detailed description of the apparatus is given in Annex A2.

6.3 Temperature Measuring Device:

6.3.1 Mercury-in-glass thermometers, if used, shall be filled with an inert gas, graduated on the stem and enamel backed. They shall conform to Specification E 1 or IP Standard Methods for Analysis and Testing of Petroleum and Related Products 1996—Appendix A, or both, for thermometers ASTM

 D 86 – 07


- | | |
|---------------------------|---|
| 1-Condenser bath | 11-Distillation flask |
| 2-Bath cover | 12-Temperature sensor |
| 3-Bath temperature sensor | 13-Flask support board |
| 4-Bath overflow | 14-Flask support platform |
| 5-Bath drain | 15-Ground connection |
| 6-Condenser tube | 16-Electric heater |
| 7-Shield | 17-Knob for adjusting level of support platform |
| 8-Viewing window | 18-Power source cord |
| 9a-Voltage regulator | 19-Receiver cylinder |
| 9b-Voltmeter or ammeter | 20-Receiver cooling bath |
| 9c-Power switch | 21-Receiver cover |
| 9d-Power light indicator | |
| 10-Vent | |

FIG. 2 Apparatus Assembly Using Electric Heater



D 86 – 07

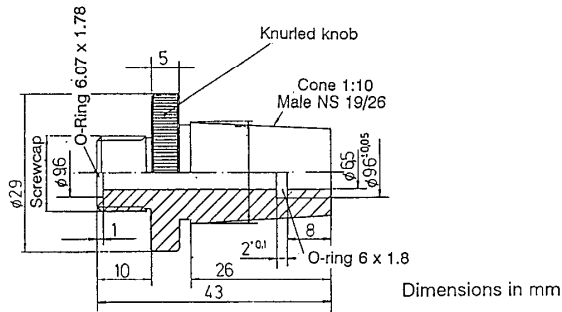


FIG. 3 PTFE Centering Device for Ground Glass Joint

7C/IP 5C and ASTM 7F for the low range thermometers, and ASTM 8C/IP 6C and ASTM 8F for the high range thermometers.

6.3.1.1 Thermometers that have been exposed for an extended period above an observed temperature of 370°C shall not be reused without a verification of the ice point or checked as prescribed in Specification E 1 and Test Method E 77.

NOTE 1—At an observed thermometer reading of 370°C, the temperature of the bulb is approaching a critical range in the glass and the thermometer may lose its calibration.

6.3.2 Temperature measurement systems other than those described in 6.3.1 are satisfactory for this test method, provided that they exhibit the same temperature lag, emergent stem effect, and accuracy as the equivalent mercury-in-glass thermometer.

6.3.2.1 The electronic circuitry or the algorithms, or both, used shall include the capability to simulate the temperature lag of a mercury-in-glass thermometer.

6.3.2.2 Alternatively, the sensor can also be placed in a casing with the tip of the sensor covered so that the assembly, because of its adjusted thermal mass and conductivity, has a temperature lag time similar to that of a mercury-in-glass thermometer.

NOTE 2—In a region where the temperature is changing rapidly during the distillation, the temperature lag of a thermometer can be as much as 3 seconds.

6.3.3 In case of dispute, the referee test method shall be carried out with the specified mercury-in-glass thermometer.

6.4 Temperature Sensor Centering Device:

6.4.1 The temperature sensor shall be mounted through a snug-fitting device designed for mechanically centering the sensor in the neck of the flask without vapor leakage. Examples of acceptable centering devices are shown in Figs. 3 and 4. (**Warning**—The use of a plain stopper with a hole drilled through the center is not acceptable for the purpose described in 6.4.1.)

NOTE 3—Other centering devices are also acceptable, as long as they position and hold the temperature sensing device in the proper position in the neck of the distillation column, as shown in Fig. 5 and described in 10.5.

NOTE 4—When running the test by the manual method, products with

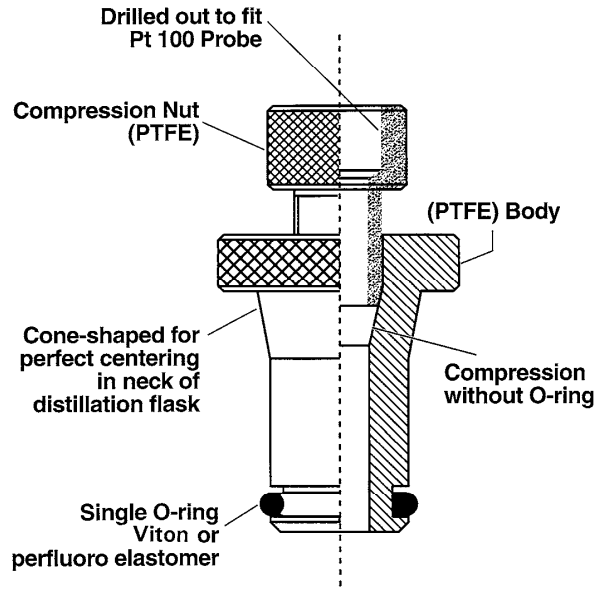


FIG. 4 Example of Centering Device Designs for Straight-Bore Neck Flasks

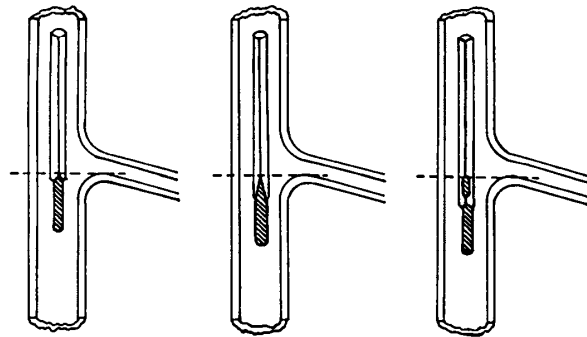


FIG. 5 Position of Thermometer in Distillation Flask

a low IBP may have one or more readings obscured by the centering device. See also 10.14.3.1.

6.5 Automated equipment manufactured in 1999 and later shall be equipped with a device to automatically shut down power to the unit and to spray an inert gas or vapor in the chamber where the distillation flask is mounted in the event of fire.

NOTE 5—Some causes of fires are breakage of the distillation flask, electrical shorts, and foaming and spilling of liquid sample through the top opening of the flask.

6.6 Barometer—A pressure measuring device capable of measuring local station pressure with an accuracy of 0.1 kPa (1 mm Hg) or better, at the same elevation relative to sea level as the apparatus in the laboratory. (**Warning**—Do not take readings from ordinary aneroid barometers, such as those used



D 86 – 07

TABLE 2 Group Characteristics

	Group 1	Group 2	Group 3	Group 4
Sample characteristics				
Distillate type				
Vapor pressure at 37.8°C, kPa	≧65.5	<65.5	<65.5	<65.5
100°F, psi	≧9.5	<9.5	<9.5	<9.5
(Test Methods D 323, D 4953, D 5190, D 5191, D 5482, IP 69 or IP 394)				
Distillation, IBP °C			≤100	>100
°F			≤212	>212
EP °C	≤250	≤250	>250	>250
°F	≤482	≤482	>482	>482

at weather stations and airports, since these are precorrected to give sea level readings.)

7. Sampling, Storage, and Sample Conditioning

7.1 Determine the Group characteristics that correspond to the sample to be tested (see Table 2). Where the procedure is dependent upon the group, the section headings will be so marked.

7.2 Sampling:

7.2.1 Sampling shall be done in accordance with Practice D 4057 or D 4177 and as described in Table 3.

7.2.1.1 *Group 1*—Condition the sample container to below 10°C, preferably by filling the bottle with the cold liquid sample and discarding the first sample. If this is not possible because, for instance, the product to be sampled is at ambient temperature, the sample shall be drawn into a bottle prechilled to below 10°C, in such a manner that agitation is kept at a minimum. Close the bottle immediately with a tight-fitting closure. (**Warning**—Do not completely fill and tightly seal a cold bottle of sample because of the likelihood of breakage on warming.)

7.2.1.2 *Groups 2, 3, and 4*—Collect the sample at ambient temperature. After sampling, close the sample bottle immediately with a tight-fitting closure.

7.2.1.3 If the sample received by the testing laboratory has been sampled by others and it is not known whether sampling has been performed as described in 7.2, the sample shall be assumed to have been so sampled.

7.3 Sample Storage:

7.3.1 If testing is not to start immediately after collection, store the samples as indicated in 7.3.2, 7.3.3, and Table 3. All samples shall be stored away from direct sunlight or sources of direct heat.

7.3.2 *Group 1*—Store the sample at a temperature below 10°C.

NOTE 6—If there are no, or inadequate, facilities for storage below 10°C, the sample may also be stored at a temperature below 20°C, provided the operator ensures that the sample container is tightly closed and leak-free.

7.3.3 *Group 2*—Store the sample at a temperature below 10°C.

NOTE 7—If there are no, or inadequate, facilities for storage below

10°C, the sample may also be stored at a temperature below 20°C, provided the operator ensures that the sample container is tightly closed and leak-free.

7.3.4 *Groups 3 and 4*—Store the sample at ambient or lower temperature.

7.4 Sample Conditioning Prior to Analysis:

7.4.1 Samples shall be conditioned to the temperature shown in Table 3 before opening the sample container.

7.4.1.1 *Groups 1 and 2*—Samples shall be conditioned to a temperature of less than 10°C (50°F) before opening the sample container.

7.4.1.2 *Groups 3 and 4*—If the sample is not fluid at ambient temperature, it is to be heated to a temperature of 9 to 21°C above its pour point (Test Method D 97, D 5949, or D 5985) prior to analysis. If the sample has partially or completely solidified during storage, it shall be vigorously shaken after melting prior to opening the sample container to ensure homogeneity.

7.4.1.3 If the sample is not fluid at room temperature, the temperature ranges shown in Table 3 for the flask and for the sample do not apply.

7.5 Wet Samples:

7.5.1 Samples of materials that visibly contain water are not suitable for testing. If the sample is not dry, obtain another sample that is free from suspended water.

7.5.2 *Groups 1 and 2*—If such a sample cannot be obtained, the suspended water can be removed by maintaining the sample at 0 to 10°C, adding approximately 10 g of anhydrous sodium sulfate per 100 mL of sample, shaking the mixture for approximately 2 min, and then allowing the mixture to settle for approximately 15 min. Once the sample shows no visible signs of water, use a decanted portion of the sample, maintained between 1 and 10°C, for the analysis. Note in the report that the sample has been dried by the addition of a desiccant.

NOTE 8—Suspended water in hazy samples in Groups 1 and 2 can be removed by the addition of anhydrous sodium sulfate and separating the liquid sample from the drying agent by decanting without statistically affecting the results of the test.⁴

7.5.3 *Groups 3 and 4*—In cases in which a water-free sample is not practical, the suspended water can be removed by shaking the sample with anhydrous sodium sulfate or other suitable drying agent and separating it from the drying agent by decanting. Note in the report that the sample has been dried by the addition of a desiccant.

8. Preparation of Apparatus

8.1 Refer to Table 1 and prepare the apparatus by choosing the appropriate distillation flask, temperature measuring device, and flask support board, as directed for the indicated group. Bring the temperature of the receiving cylinder, the flask, and the condenser bath to the indicated temperature.

8.2 Make any necessary provisions so that the temperature of the condenser bath and the receiving cylinder will be maintained at the required temperatures. The receiving cylinder shall be in a bath such that either the liquid level is at least

⁴ Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR: D02-1455.



TABLE 3 Sampling, Storage, and Sample Conditioning

		Group 1	Group 2	Group 3	Group 4
Temperature of sample bottle	°C	<10			
	°F	<50			
Temperature of stored sample	°C	<10 ^A	<10	ambient	ambient
	°F	<50 ^A	<50	ambient	ambient
Temperature of sample after conditioning prior to analysis	°C	<10	<10	Ambient or 9 to 21°C above pour point ^B	Ambient or 48 to 70°F above pour point ^B
	°F	<50	<50	Ambient or 48 to 70°F above pour point ^B	Ambient or 48 to 70°F above pour point ^B
If sample is wet		resample	resample		
If resample is still wet ^C		dry in accordance with 7.5.2		dry in accordance with 7.5.3	

^A Under certain circumstances, samples can also be stored at temperatures below 20°C (68°F). See also 7.3.2 and 7.3.3.

^B If sample is (semi)-solid at ambient temperature, see also 10.3.1.1.

^C If sample is known to be wet, resampling may be omitted. Dry sample in accordance with 7.5.2 and 7.5.3.

as high as the 100-mL mark or the entire receiving cylinder is surrounded by an air circulation chamber.

8.2.1 *Groups 1, 2, and 3*—Suitable media for low temperature baths include, but are not limited to, chopped ice and water, refrigerated brine, and refrigerated ethylene glycol.

8.2.2 *Group 4*—Suitable media for ambient and higher bath temperatures include, but are not limited to, cold water, hot water, and heated ethylene glycol.

8.3 Remove any residual liquid in the condenser tube by swabbing with a piece of soft, lint-free cloth attached to a cord or wire.

9. Calibration and Standardization

9.1 *Temperature Measurement System*—Temperature measurement systems using other than the specified mercury-in-glass thermometers shall exhibit the same temperature lag, emergent stem effect, and accuracy as the equivalent mercury-in-glass thermometer. Confirmation of the calibration of these temperature measuring systems shall be made at intervals of not more than six months, and after the system has been replaced or repaired.

9.1.1 The accuracy and the calibration of the electronic circuitry or computer algorithms, or both, shall be verified by the use of a standard precision resistance bench. When performing this verification, no algorithms shall be used to correct the temperature for lag and the emergent stem effect (see manufacturer's instructions).

9.1.2 Verification of the calibration of temperature measuring devices shall be conducted by distilling toluene in accordance with Group 1 of this test method and comparing the 50 % recovered temperature with that shown in Table 4.⁵

9.1.2.1 If the temperature reading is not within the values shown in Table 4 for the respective apparatus being used (see Note 10 and Table 4), the temperature measurement system shall be considered defective and shall not be used for the test.

NOTE 9—Toluene is used as a verification fluid for calibration; it will yield almost no information on how well an electronic measurement system simulates the temperature lag of a liquid-in-glass thermometer.

9.1.2.2 Reagent grade toluene and hexadecane (cetane), conforming to the specifications of the Committee on Analyti-

cal Reagents of the American Chemical Society,⁶ shall be used. However, other grades may also be used, provided it is first ascertained that the reagent is of sufficient purity to permit its use without lessening the accuracy of the determination.

NOTE 10—At 101.3 kPa, toluene is shown in reference manuals as boiling at 110.6°C when measured using a partial immersion thermometer. Because this test method uses thermometers calibrated for total immersion, the results typically will be lower and, depending on the thermometer and the situation, may be different for each thermometer. At 101.3 kPa, hexadecane is shown in reference manuals as boiling at 287.0°C when measured using a partial immersion thermometer. Because this test method uses thermometers calibrated for total immersion, the results typically will be lower, and, depending on the thermometer and the situation, may be different for each thermometer.

9.1.3 A procedure to determine the magnitude of the temperature lag is described in Annex A3.

9.1.4 A procedure to emulate the emergent stem effect is described in Appendix X4.

9.1.5 To verify the calibration of the temperature measurement system at elevated temperatures, use hexadecane. The temperature measurement system shall indicate, at 50% recovered, a temperature comparable to that shown in Table 4 for the respective apparatus under Group 4 distillation conditions.

NOTE 11—Because of the high melting point of hexadecane, Group 4 verification distillations will have to be carried out with condenser temperatures >20°C.

9.2 Automated Method:

9.2.1 *Level Follower*—For an automated distillation apparatus, the level follower/recording mechanism of the apparatus shall have a resolution of 0.1 mL or better with a maximum error of 0.3 mL between the 5 and 100 mL points. The calibration of the assembly shall be verified in accordance with manufacturer's instructions at intervals of not more than three months and after the system has been replaced or repaired.

NOTE 12—The typical calibration procedure involves verifying the output with the receiver containing 5 and 100 mL of material respectively.

9.2.2 *Barometric Pressure*—At intervals of not more than six months, and after the system has been replaced or repaired,

⁵ Supporting data have been filed at ASTM International Headquarters and may be obtained by requesting Research Report RR: D02-1580.

⁶ *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.



D 86 – 07

TABLE 4 True and Min and Max D 86 50 % Recovered Boiling Points (°C)^a

		Manual		Automated	
		Distillation conditions min D 86 50 % boiling point	Distillation conditions max D 86 50 % boiling point	Distillation conditions min D 86 50 % boiling point	Distillation conditions max D 86 50 % boiling point
Toluene	ASTM/IP true boiling point	Group 1, 2, and 3	Group 1, 2, and 3	Group 1, 2, and 3	Group 1, 2, and 3
	110.6	105.9	111.8	108.5	109.7
Hexadecane	ASTM/IP true boiling point	Group 4	Group 4	Group 4	Group 4
	287.0	272.2	283.1	277.0	280.0

^a The manual and automated temperatures show in this table are the values for the 95 % tolerance interval for the 99 % population coverage. The proposed tolerance is approximately $3 \times$ sigma. Information on the values in this table can be found in RR:D02–1580.

the barometric reading of the instrument shall be verified against a barometer, as described in 6.6.

10. Procedure

10.1 Record the prevailing barometric pressure.

10.2 *Groups 1 and 2*—Fit a low range thermometer provided with a snug-fitting cork or stopper of silicone rubber, or equivalent polymeric material, tightly into the neck of the sample container and bring the temperature of the sample to the temperature indicated in Table 3.

10.3 *Groups 1, 2, 3, and 4*—Check that the temperature of the sample is as shown in Table 3. Pour the specimen precisely to the 100-mL mark of the receiving cylinder, and transfer the contents of the receiving cylinder as completely as practical into the distillation flask, ensuring that none of the liquid flows into the vapor tube.

NOTE 13—It is important that the difference between the temperature of the specimen and the temperature of the bath around the receiving cylinder is as small as practically possible. A difference of 5°C can make a difference of 0.7 mL.

10.3.1 *Groups 3 and 4*—If the sample is not fluid at ambient temperature, it is to be heated to a temperature between 9 and 21°C above its pour point (Test Methods D 97, D 5949, D 5950, or D 5985) prior to analysis. If the sample has partially or completely solidified in the intervening period, it shall be vigorously shaken after melting, and prior to sampling, to ensure homogeneity.

10.3.1.1 If the sample is not fluid at ambient temperatures, disregard the temperature range shown in Table 1 for the receiving cylinder and sample. Prior to analysis, heat the receiving cylinder to approximately the same temperature as the sample. Pour the heated specimen precisely to the 100-mL mark of the receiving cylinder, and transfer the contents of the receiving cylinder as completely as practical into the distillation flask, ensuring that none of the liquid flows into the vapor tube.

NOTE 14—Any material that evaporates during the transfer will contribute to the loss; any material that remains in the receiving cylinder will contribute to the observed recovery volume at the time of the IBP.

10.4 If the sample can be expected to demonstrate irregular boiling behavior, that is, bumping, add a few boiling chips to the specimen. The addition of a few boiling chips is acceptable for any distillation.

10.5 Fit the temperature sensor through a snug-fitting device, as described in 6.4, to mechanically center the sensor in the neck of the flask. In the case of a thermometer, the bulb is centered in the neck and the lower end of the capillary is level with the highest point on the bottom of the inner wall of the vapor tube (see Fig. 5). In the case of a thermocouple or resistance thermometer, follow the manufacturer's instructions as to placement (see Fig. 6).

NOTE 15—If vacuum grease is used on the mating surface of the centering device, use the minimum amount of grease that is practical.

10.6 Fit the flask vapor tube, provided with a snug-fitting cork or rubber stopper of silicone, or equivalent polymeric material, tightly into the condenser tube. Adjust the flask in a vertical position so that the vapor tube extends into the condenser tube for a distance from 25 to 50 mm. Raise and adjust the flask support board to fit it snugly against the bottom of the flask.

10.7 Place the receiving cylinder that was used to measure the specimen, without drying the inside of the cylinder, into its temperature-controlled bath under the lower end of the condenser tube. The end of the condenser tube shall be centered in the receiving cylinder and shall extend therein for a distance of at least 25 mm, but not below the 100-mL mark.

10.8 Initial Boiling Point:

10.8.1 *Manual Method*—To reduce evaporation loss of the distillate, cover the receiving cylinder with a piece of blotting paper, or similar material, that has been cut to fit the condenser tube snugly. If a receiver deflector is being used, start the distillation with the tip of the deflector just touching the wall of the receiving cylinder. If a receiver deflector is not used, keep the drip tip of the condenser away from the wall of the receiving cylinder. Note the start time. Observe and record the IBP to the nearest 0.5°C (1.0°F). If a receiver deflector is not being used, immediately move the receiving cylinder so that the tip of the condenser touches its inner wall.

10.8.2 *Automated Method*—To reduce evaporation loss of the distillate, use the device provided by the instrument manufacturer for this purpose. Apply heat to the distillation flask and contents with the tip of the receiver deflector just touching the wall of the receiving cylinder. Note the start time. Record the IBP to the nearest 0.1°C (0.2°F).

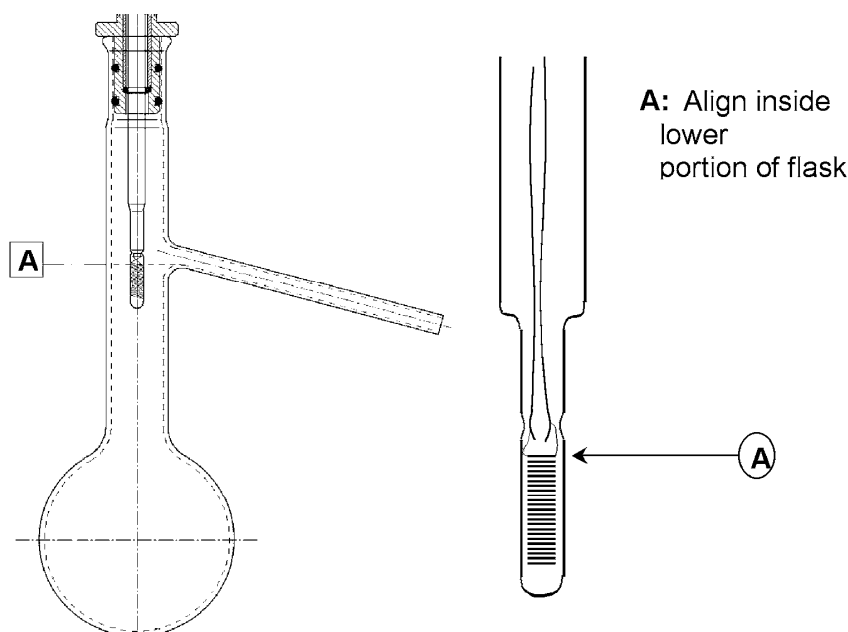
 D 86 – 07


FIG. 6 Example of Recommended Placement of Pt-100 Probe Relative to Distillation Flask Sidearm for Automated D 86 Distillation Instrument

10.9 Regulate the heating so that the time interval between the first application of heat and the IBP is as specified in Table 5.

10.10 Regulate the heating so that the time from IBP to 5 or 10 % recovered is as indicated in Table 5.

10.11 Continue to regulate the heating so that the uniform average rate of condensation from 5 or 10 % recovered to 5 mL residue in the flask is 4 to 5 mL per min. (**Warning**—Due to the configuration of the boiling flask and the conditions of the test, the vapor and liquid around the temperature sensor are not in thermodynamic equilibrium. The distillation rate will consequently have an effect on the measured vapor temperature. The distillation rate shall, therefore, be kept as constant as possible throughout the test.)

NOTE 16—When testing gasoline samples, it is not uncommon to see the condensate suddenly form non-miscible liquid phases and bead up on the temperature measuring device and in the neck of the boiling flask at a vapor temperature of around 160°C. This may be accompanied by a sharp (about 3°C) dip in the vapor temperature and a drop in the recovery rate. The phenomenon, which may be due to the presence of trace water in the sample, may last for 10 to 30 s before the temperature recovers and the condensate starts flowing smoothly again. This point is sometimes colloquially referred to as the Hesitation Point.

10.12 Repeat any distillation that did not meet the requirements described in 10.9, 10.10, and 10.11.

10.13 If a decomposition point, as described in 3.1.3, is observed, discontinue the heating and proceed as directed in 10.17.

10.14 In the interval between the IBP and the end of the distillation, observe and record data necessary for the calculation and reporting of the results of the test as required by the

specification involved, or as previously established for the sample under test. These observed data can include temperature readings at prescribed percentages recovered or percentages recovered at prescribed temperature readings, or both.

10.14.1 *Manual Method*—Record all volumes in the graduated cylinder to the nearest 0.5 mL, and all temperature readings to the nearest 0.5°C (1.0°F).

10.14.2 *Automated Method*—Record all volumes in the receiving cylinder to the nearest 0.1 mL, and all temperature readings to the nearest 0.1°C (0.2°F).

10.14.3 *Group 1, 2, 3, and 4*—In cases in which no specific data requirements have been indicated, record the IBP and the EP (FBP) or the dry point, or both, and temperature readings at 5, 15, 85, and 95 % recovered, and at each 10 % multiple of volume recovered from 10 to 90, inclusive.

10.14.3.1 *Group 4*—When a high range thermometer is used in testing aviation turbine fuels and similar products, pertinent thermometer readings can be obscured by the centering device. If these readings are required, perform a second distillation in accordance with Group 3. In such cases, reading from a low range thermometer can be reported in place of the obscured high range thermometer readings, and the test report shall so indicate. If, by agreement, the obscured readings are waived, the test report shall so indicate.

10.14.4 When it is required to report the temperature reading at a prescribed percent evaporated or recovered for a sample that has a rapidly changing slope of the distillation curve in the region of the prescribed percent evaporated or recovered reading, record temperature readings at every 1 % recovered. The slope is considered rapidly changing if the



D 86 – 07

TABLE 5 Conditions During Test Procedure

		Group 1	Group 2	Group 3	Group 4
Temperature of cooling bath ^a	°C	0–1	0–5	0–5	0–60
	°F	32–34	32–40	32–40	32–140
Temperature of bath around receiving cylinder	°C	13–18	13–18	13–18	±3
	°F	55–65	55–65	55–65	±5 of charge temperature
Time from first application of heat to initial boiling point, min		5–10	5–10	5–10	5–15
Time from initial boiling point to 5 % recovered, s		60–100	60–100		
Time from initial boiling point to 10 % recovered, min					
Uniform average rate of condensation from 5 % recovered to 5 mL in flask, mL/min		4–5	4–5	4–5	4–5
Time recorded from 5 mL residue to end point, min		5 max	5 max	5 max	5 max

^a The proper condenser bath temperature will depend upon the wax content of the sample and of its distillation fractions. The test is generally performed using one single condenser temperature. Wax formation in the condenser can be deduced from (a) the presence of wax particles in the distillate coming off the drip tip, (b) a higher distillation loss than what would be expected based on the initial boiling point of the specimen, (c) an erratic recovery rate and (d) the presence of wax particles during the removal of residual liquid by swabbing with a lint-free cloth (see 8.3). The minimum temperature that permits satisfactory operation shall be used. In general, a bath temperature in the 0 to 4°C range is suitable for kerosene, Grade No. 1 fuel oil and Grade No. 1-D diesel fuel oil. In some cases involving Grade No. 2 fuel oil, Grade No. 2-D diesel fuel oil, gas oils and similar distillates, it may be necessary to hold the condenser bath temperature in the 38 to 60°C range.

change in slope (C) of the data points described in 10.14.2 in that particular area is greater than 0.6 (change of slope (F) is greater than 1.0) as calculated by Eq 1 (Eq 2).

$$\text{Change of Slope } (C) = \frac{(C_2 - C_1)(V_2 - V_1) - (C_3 - C_2)(V_3 - V_2)}{(V_2 - V_1) - (V_3 - V_2)} \quad (1)$$

$$\text{Change of Slope } (F) = \frac{(F_2 - F_1)(V_2 - V_1) - (F_3 - F_2)(V_3 - V_2)}{(V_2 - V_1) - (V_3 - V_2)} \quad (2)$$

where:

C_1 = temperature at the volume % recorded one reading

prior to the volume % in question, °C,

C_2 = temperature at the volume % recorded in question, °C,

C_3 = temperature at the volume % recorded following the volume % in question, °C,

F_1 = temperature at the volume % recorded one reading prior to the volume % in question, °F,

F_2 = temperature at the volume % recorded in question, °F,

F_3 = temperature at the volume % recorded following the volume % in question, °F,

V_1 = volume % recorded one reading prior to the volume % in question,

V_2 = volume % recorded at the volume % in question, and

V_3 = volume % recorded following the volume % in question.

10.15 When the residual liquid in the flask is approximately 5 mL, make a final adjustment of the heat. The time from the 5 mL of liquid residue in the flask to the EP (FBP) shall be within the limits prescribed in Table 5. If this condition is not satisfied, repeat the test with appropriate modification of the final heat adjustment.

NOTE 17—Since it is difficult to determine when there is 5 mL of boiling liquid left in the flask, this time is determined by observing the amount of liquid recovered in the receiving cylinder. The dynamic holdup has been determined to be approximately 1.5 mL at this point. If there are no front end losses, the amount of 5 mL in the flask can be assumed to

correspond with an amount of 93.5 mL in the receiving cylinder. This amount has to be adjusted for the estimated amount of front end loss.

10.15.1 If the actual front end loss differs more than 2 mL from the estimated value, the test shall be rerun.

10.16 Observe and record the EP (FBP) or the dry point, or both, as required, and discontinue the heating.

10.17 Allow the distillate to drain into the receiving cylinder, after heating has been discontinued.

10.17.1 *Manual Method*—While the condenser tube continues to drain into the graduated cylinder, observe and note the volume of condensate to the nearest 0.5 mL at 2 min intervals until two successive observations agree. Measure the volume in the receiving cylinder accurately, and record it to the nearest 0.5 mL.

10.17.2 *Automated Method*—The apparatus shall continually monitor the recovered volume until this volume changes by no more than 0.1 mL in 2 min. Record the volume in the receiving cylinder accurately to the nearest 0.1 mL.

10.18 Record the volume in the receiving cylinder as percent recovery. If the distillation was previously discontinued under the conditions of a decomposition point, deduct the percent recovered from 100, report this difference as the sum of percent residue and percent loss, and omit the procedure given in 10.19.

10.19 After the flask has cooled and no more vapor is observed, disconnect the flask from the condenser, pour its contents into a 5-mL graduated cylinder, and with the flask suspended over the cylinder, allow the flask to drain until no appreciable increase in the volume of liquid in the cylinder is observed. Measure the volume in the graduated cylinder to the nearest 0.1 mL, and record as percent residue.

10.19.1 If the 5-mL graduated cylinder does not have graduations below 1 mL and the volume of liquid is less than 1 mL, prefill the cylinder with 1 mL of a heavy oil to allow a better estimate of the volume of the material recovered.

10.19.1.1 If a residue greater than expected is obtained, and the distillation was not purposely terminated before the EP,



D 86 – 07

check whether adequate heat was applied towards the end of the distillation and whether conditions during the test conformed to those specified in Table 5. If not, repeat test.

NOTE 18—The distillation residues of this test method for gasoline, kerosine, and distillate diesel are typically 0.9–1.3, 0.9–1.3, and 1.0–1.4 volume %, respectively.

NOTE 19—The test method is not designed for the analysis of distillate fuels containing appreciable quantities of residual material (see 1.2).

10.19.2 *Groups 1, 2, 3, and 4*—Record the volume in the 5-mL graduated cylinder, to the nearest 0.1 mL, as percent residue.

10.20 If the intent of the distillation is to determine the percent evaporated or percent recovered at a predetermined corrected temperature reading, modify the procedure to conform to the instructions described in Annex A4.

10.21 Examine the condenser tube and the side arm of the flask for waxy or solid deposits. If found, repeat the test after making adjustments described in Footnote A of Table 5.

11. Calculations

11.1 The percent total recovery is the sum of the percent recovery (see 10.18) and the percent residue (see 10.19). Deduct the percent total recovery from 100 to obtain the percent loss.

11.2 Do not correct the barometric pressure for meniscus depression, and do not adjust the pressure to what it would be at sea level.

NOTE 20—The observed barometric reading does not have to be corrected to a standard temperature and to standard gravity. Even without performing these corrections, the corrected temperature readings for the same sample between laboratories at two different locations in the world will, in general, differ less than 0.1°C at 100°C. Almost all data obtained earlier have been reported at barometric pressures that have not been corrected to standard temperature and to standard gravity.

11.3 Correct temperature readings to 101.3 kPa (760 mm Hg) pressure. Obtain the correction to be applied to each temperature reading by means of the Sydney Young equation as given in Eq 3, Eq 4, or Eq 5, as appropriate, or by the use of Table 6. For Celsius temperatures:

$$C_c = 0.0009 (101.3 - P_k) (273 + t_c) \quad (3)$$

$$C_c = 0.00012 (760 - P) (273 + t_c) \quad (4)$$

For Fahrenheit temperatures:

$$C_f = 0.00012 (760 - P) (460 + t_f) \quad (5)$$

where:

- t_c = the observed temperature reading in °C,
- t_f = the observed temperature reading in °F,
- C_c and C_f = corrections to be added algebraically to the observed temperature readings,
- P_k = barometric pressure, prevailing at the time and location of the test, kPa, and
- P = barometric pressure, prevailing at the time and location of the test, mm Hg.

After applying the corrections and rounding each result to the nearest 0.5°C (1.0°F) or 0.1°C (0.2°F), as appropriate to the

TABLE 6 Approximate Thermometer Reading Correction

Temperature Range		Correction ^A per 1.3 kPa (10 mm Hg) Difference in Pressure	
°C	°F	°C	°F
10–30	50–86	0.35	0.63
30–50	86–122	0.38	0.68
50–70	122–158	0.40	0.72
70–90	158–194	0.42	0.76
90–110	194–230	0.45	0.81
110–130	230–266	0.47	0.85
130–150	266–302	0.50	0.89
150–170	302–338	0.52	0.94
170–190	338–374	0.54	0.98
190–210	374–410	0.57	1.02
210–230	410–446	0.59	1.07
230–250	446–482	0.62	1.11
250–270	482–518	0.64	1.15
270–290	518–554	0.66	1.20
290–310	554–590	0.69	1.24
310–330	590–626	0.71	1.28
330–350	626–662	0.74	1.33
350–370	662–698	0.76	1.37
370–390	698–734	0.78	1.41
390–410	734–770	0.81	1.46

^A Values to be added when barometric pressure is below 101.3 kPa (760 mm Hg) and to be subtracted when barometric pressure is above 101.3 kPa.

apparatus being used, use the corrected temperature readings in all further calculations and reporting.

NOTE 21—Temperature readings are not corrected to 101.3 kPa (760 mm Hg) when product definitions, specifications, or agreements between the parties involved indicate, specifically, that such correction is not required or that correction shall be made to some other base pressure.

11.4 Correct the actual loss to 101.3 kPa (760 mm Hg) pressure when temperature readings are corrected to 101.3 kPa pressure. The corrected loss, L_c , is calculated from Eq 6 or Eq 7, as appropriate, or can be read from the tables presented as Fig. X3.1 or Fig. X3.2.

$$L_c = 0.5 + (L - 0.5) / \{1 + (101.3 - P_k) / 8.00\} \quad (6)$$

$$L_c = 0.5 + (L - 0.5) / \{1 + (760 - P) / 60.0\} \quad (7)$$

where:

- L = observed loss,
- L_c = corrected loss,
- P_k = pressure, kPa, and
- P = pressure, mm Hg.

NOTE 22—Eq 6 and 7 above have been derived from the data in Table 7 and Eqs 5 and 6 in Test Method D 86 – 95 and earlier versions. It is probable that Eq 6 and 7 shown were the original empirical equations from which the table and equations in the Test Method D 86 – 95 and earlier versions were derived.

11.4.1 Calculate the corresponding corrected percent recovery in accordance with the following equation:

$$R_c = R + (L - L_c) \quad (8)$$

where:

- L = percent loss or observed loss,
- L_c = corrected loss,
- R = percent recovery, and
- R_c = corrected percent recovery.



D 86 – 07

TABLE 7 Data Points for Determining Slope, S_C or S_F

Slope at %	IBP	5	10	20	30	40	50	60	70	80	90	95	EP
T_L at %	0	0	0	10	20	30	40	50	60	70	80	90	95
T_U at %	5	10	20	30	40	50	60	70	80	90	90	95	V_{EP}
V_U, V_L	5	10	20	20	20	20	20	20	20	20	10	5	V_{EP-95}

11.5 To obtain the percent evaporated at a prescribed temperature reading, add the percent loss to each of the observed percent recovered at the prescribed temperature readings, and report these results as the respective percent evaporated, that is:

$$P_e = P_r + L \quad (9)$$

where:

L = observed loss,

P_e = percent evaporated, and

P_r = percent recovered.

11.6 To obtain temperature readings at prescribed percent evaporated, and if no recorded temperature data is available within 0.1 volume % of the prescribed percent evaporated, use either of the two following procedures, and indicate on the report whether the arithmetical procedure or the graphical procedure has been used.

11.6.1 *Arithmetical Procedure*—Deduct the observed loss from each prescribed percent evaporated to obtain the corresponding percent recovered. Calculate each required temperature reading as follows:

$$T = T_L + (T_H - T_L)(R - R_L)/(R_H - R_L) \quad (10)$$

where:

R = percent recovered corresponding to the prescribed percent evaporated,

R_H = percent recovered adjacent to, and higher than R ,

R_L = percent recovered adjacent to, and lower than R ,

T = temperature reading at the prescribed percent evaporated,

T_H = temperature reading recorded at R_H , and

T_L = temperature reading recorded at R_L .

Values obtained by the arithmetical procedure are affected by the extent to which the distillation graphs are nonlinear. Intervals between successive data points can, at any stage of the test, be no wider than the intervals indicated in 10.18. In no case shall a calculation be made that involves extrapolation.

11.6.2 *Graphical Procedure*—Using graph paper with uniform subdivisions, plot each temperature reading corrected for barometric pressure, if required (see 11.3), against its corresponding percent recovered. Plot the IBP at 0 % recovered. Draw a smooth curve connecting the points. For each prescribed percent evaporated, deduct the distillation loss to obtain the corresponding percent recovered and take from the graph the temperature reading that this percent recovered indicates. Values obtained by graphical interpolation procedures are affected by the care with which the plot is made.

NOTE 23—See Appendix X1 for numerical examples illustrating the arithmetical procedure.

11.6.3 In most automated instruments, temperature-volume data are collected at 0.1 volume % intervals or less and stored in memory. To report a temperature reading at a prescribed percent evaporated, neither of the procedures described in 11.6.1 and 11.6.2 have to be used. Obtain the desired temperature directly from the database as the temperature closest to and within 0.1 volume % of the prescribed percent evaporated.

12. Report

12.1 Report the following information (see Appendix X5 for examples of reports):

12.2 Report the barometric pressure to the nearest 0.1 kPa (1 mm Hg).

12.3 Report all volumetric readings in percentages.

12.3.1 *Manual Method*—Report volumetric readings to the nearest 0.5, and all temperature readings to the nearest 0.5°C (1.0°F).

12.3.2 *Automated Method*—Report volumetric readings to the nearest 0.1, and all temperature readings to the nearest 0.1°C (0.2°F) or less.

12.4 After barometric corrections of the temperature readings have been made, the following data require no further calculation prior to reporting: IBP, dry point, EP (FBP), decomposition point, and all pairs of corresponding values involving percent recovered and temperature readings.

12.4.1 The report shall state if the temperature readings have not been corrected for barometric pressure.

12.5 When the temperature readings have not been corrected to 101.3 kPa (760 mm Hg) pressure, report the percent residue and percent loss as *observed* in accordance with 10.19 and 11.1, respectively.

12.6 Do not use the corrected loss in the calculation of percent evaporated.

12.7 It is advisable to base the report on relationships between temperature readings and percent evaporated when the sample is a gasoline, or any other product classified under Group 1, or in which the percent loss is greater than 2.0. Otherwise, the report can be based on relationships between temperature readings and percent evaporated or percent recovered. Every report must indicate clearly which basis has been used.

12.7.1 In the manual method, if results are given in percent evaporated versus temperature readings, report if the arithmetical or the graphical procedure was used (see 11.6).

12.8 Report if a drying agent, as described in 7.5.2 or 7.5.3, was used.

12.9 Fig. X1.1 is an example of a tabular report. It shows the percent recovered versus the corresponding temperature reading and versus the corrected temperature reading. It also shows the percent loss, the corrected loss, and the percent evaporated versus the corrected temperature reading.



D 86 – 07

TABLE 8 Repeatability and Reproducibility for Group 1

Evaporated Point, %	Manual Repeatability ^A		Manual Reproducibility ^A		Automated Repeatability ^A		Automated Reproducibility ^A	
	°C	°F	°C	°F	°C	°F	°C	°F
IBP	3.3	6	5.6	10	3.9	7	7.2	13
5	1.9+0.86S _C	3.4+0.86S _F	3.1+1.74S _C	5.6+1.74S _F	2.1+0.67S _C	3.8+0.67S _F	4.4+2.0S _C	7.9+2.0S _F
10	1.2+0.86S _C	2.2+0.86S _F	2.0+1.74S _C	3.6+1.74S _F	1.7+0.67S _C	3.0+0.67S _F	3.3+2.0S _C	6.0+2.0S _F
20	1.2+0.86S _C	2.2+0.86S _F	2.0+1.74S _C	3.6+1.74S _F	1.1+0.67S _C	2.0+0.67S _F	3.3+2.0S _C	6.0+2.0S _F
30–70	1.2+0.86S _C	2.2+0.86S _F	2.0+1.74S _C	3.6+1.74S _F	1.1+0.67S _C	2.0+0.67S _F	2.6+2.0S _C	4.7+2.0S _F
80	1.2+0.86S _C	2.2+0.86S _F	2.0+1.74S _C	3.6+1.74S _F	1.1+0.67S _C	2.0+0.67S _F	1.7+2.0S _C	3.0+2.0S _F
90	1.2+0.86S _C	2.2+0.86S _F	0.8+1.74S _C	1.4+1.74S _F	1.1+0.67S _C	2.0+0.67S _F	0.7+2.0S _C	1.2+2.0S _F
95	1.2+0.86S _C	2.2+0.86S _F	1.1+1.74S _C	1.9+1.74S _F	2.5+0.67S _C	4.5+0.67S _F	2.6+2.0S _C	4.7+2.0S _F
FBP	3.9	7	7.2	13	4.4	8	8.9	16

^A S_C or S_F is the average slope (or rate of change) calculated in accordance with 13.2.

13. Precision and Bias

13.1 Precision:

13.1.1 The precision of this test method has been determined by the statistical examination of interlaboratory test results obtained by 26 laboratories on 14 gasolines, by 4 laboratories on 8 samples of kerosine by the manual procedure, 3 laboratories on 6 samples of kerosine by the automated procedure, and 5 laboratories on 10 samples of diesel fuel by both the manual and automated procedures. Table A1.1 lists which tables and figures are to be used for the different fuel groups, distillation methods, and temperature scales.

13.1.2 The following terms are used in this section: (1) *r* = repeatability and (2) *R* = reproducibility. The value of any of these terms will depend upon whether the calculations were carried out in °C or °F.

13.2 Slope or Rate of Change of Temperature:

13.2.1 To determine the precision of a result, it is generally necessary to determine the slope or rate of change of the temperature at that particular point. This variable, denoted as S_C or S_F, is equal to the change in temperature, either in °C or in °F, respectively, per percent recovered or evaporated.

13.2.2 For Group 1 in the manual method and for all groups in the automated method, the precision of the IBP and EP does not require any slope calculation.

13.2.3 With the exception stated in 13.2.2 and in 13.2.4, the slope at any point during the distillation is calculated from the following equations, using the values shown in Table 7:

$$S_C \text{ (or } S_F) = (T_U - T_L) / (V_U - V_L) \quad (11)$$

where:

S_C = is the slope, °C/volume %,

S_F = is the slope, °F/volume %,

T_U = is the upper temperature, °C (or °F),

T_L = is the lower temperature, °C (or °F),

V_U = is the volume % recovered or evaporated corresponding to T_U,

V_L = is the volume % recovered or evaporated corresponding to T_L and

V_{EP} = is the volume % recovered or evaporated corresponding to the end point.

13.2.4 In the event that the distillation end point occurs prior to the 95 % point, the slope at the end point is calculated as follows:

$$S_C \text{ (or } S_F) = (T_{EP} - T_{HR}) / (V_{EP} - V_{HR}) \quad (12)$$

where:

T_{EP} or T_{HR} is the temperature, in °C or °F at the percent volume recovered indicated by the subscript,

V_{EP} or V_{HR} is the volume % recovered.

13.2.4.1 The subscripts in Eq 12 refer to:

EP = end point

HR = highest reading, either 80 % of 90 %, prior to the end point.

13.2.5 For points between 10 to 85 % recovered which are not shown in Table 7, the slope is calculated as follows:

$$S_C \text{ (or } S_F) = 0.05 (T_{(V+10)} - T_{(V-10)}) \quad (13)$$

13.2.6 For samples in Group 1, the precision data reported are based on slope values calculated from percent evaporated data.

13.2.7 For samples in Group 2, 3, and 4, the precision data reported (Table 8) are based on slope values calculated from percent recovered data.

13.2.8 When results are reported as volume % recovered, slope values for the calculation of precision are to be determined from percent recovered data; when results are reported as volume % evaporated slope values are to be determined from % evaporated data.

13.3 Manual Method:

13.3.1 Repeatability:

13.3.1.1 *GROUP 1*—The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from Table 9 in only one case in twenty.

13.3.1.2 *GROUPS 2, 3, and 4*—The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from the values in Table 9 in only one case in twenty.

13.3.2 Reproducibility:



TABLE 9 Repeatability and Reproducibility for Groups 2, 3 and 4 (Manual Method)

	Repeatability ^A		Reproducibility ^A	
	°C	°F	°C	°F
IBP	1.0+0.35S _C	1.9+0.35S _F	2.8+0.93S _C	5.0+0.93S _F
5–95 %	1.0+0.41S _C	1.8+0.41S _F	1.8+1.33S _C	3.3+1.33S _F
FBP	0.7+0.36S _C	1.3+0.36S _F	3.1+0.42S _C	5.7+0.42S _F
% volume at temperature reading	0.7+0.92/S _C	0.7+1.66/S _F	1.5+1.78/S _C	1.53+3.20/S _F

^A Calculate S_C or S_F from 13.2.

13.3.2.1 *GROUP 1*—The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this method, exceed the values calculated from Table 9 in only one case in twenty.⁷

13.3.2.2 *GROUPS 2, 3, and 4*—The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this test method, exceed the values calculated from the data in Table 9 in only one case in twenty.⁸

13.4 Automated Method:

13.4.1 Repeatability:

13.4.1.1 *GROUP 1*—The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from Table 8 in only one case in twenty.

13.4.1.2 *GROUPS 2, 3, and 4*—The difference between successive results obtained by the same operator with the same apparatus under constant operating conditions on identical test material would, in the long run, in the normal and correct operation of this test method, exceed the values calculated from Table 10 in only one case in twenty.

13.4.2 Reproducibility:

13.4.2.1 *GROUP 1*—The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this test method, exceed the values calculated from Table 8 in only one case in twenty.⁷

13.4.2.2 *GROUPS 2, 3, and 4*—The difference between two single and independent results obtained by different operators working in different laboratories on identical test material would, in the normal and correct operation of this test method, exceed the values calculated from Table 10 in only one case in twenty.

13.5 Bias:

13.5.1 *Bias*—Due to the use of total immersion thermometers, or temperature sensing systems designed to emulate them, the distillation temperatures in this test method are somewhat lower than the true temperatures. The amount of bias depends on the product being distilled and the thermometer used.

13.5.2 *Relative Bias*—There exists a bias between the empirical results of distillation properties obtained by this test method and the true boiling point distillation curve obtained by Test Method D 2892. The magnitude of this bias, and how it relates to test precision, has not been rigorously studied.

13.5.3 *Relative Bias*—An interlaboratory study⁵ conducted in 2003 using manual and automated apparatus has concluded that there is no statistical evidence to suggest that there is a bias between manual and automated results.

⁷ Precision data obtained from RR study on both manual and automated D 86 units by North American and IP Laboratories.

⁸ Table 9 has been derived from the nomographs in Figs. 6 and 7 in ASTM D 86–97.

14. Keywords

14.1 batch distillation; distillates; distillation; laboratory distillation; petroleum products



D 86 – 07

TABLE 10 Repeatability and Reproducibility for Groups 2, 3 and 4 (Automated)

Collected, %	Repeatability ^A		Reproducibility ^A	
	°C	°F	°C	°F
IBP	3.5	6.3	8.5	15.3
2 %	3.5	6.3	2.6 + 1.92S _C	4.7 + 1.92S _F
5 %	1.1 + 1.08S _C	2.0 + 1.08S _F	2.0 + 2.53S _C	3.6 + 2.53S _F
10 %	1.2 + 1.42S _C	2.2 + 1.42S _F	3.0 + 2.64S _C	5.4 + 2.64S _F
20–70 %	1.2 + 1.42S _C	2.2 + 1.42S _F	2.9 + 3.97S _C	5.2 + 3.97S _F
80 %	1.2 + 1.42S _C	2.2 + 1.42S _F	3.0 + 2.64S _C	5.4 + 2.64S _F
90–95 %	1.1 + 1.08S _C	2.0 + 1.08S _F	2.0 + 2.53S _C	3.6 + 2.53S _F
FBP	3.5	6.3	10.5	18.9

^A S_C or S_F is the average slope (or rate of change) calculated in accordance with 13.5.

ANNEXES

(Mandatory Information)

A1. REPEATABILITY AND REPRODUCIBILITY DEFINITION AIDS

A1.1 Table A1.1 is an aid for determining which repeatability and reproducibility table or section, is to be used.

TABLE A1.1 Summary of Aids for Definition of Repeatability and Reproducibility

Group	Method	Temperature Scale	Table or Section to Use	
			Repeatability	Reproducibility
1	Manual	°C	Table 8	Table 8
		°F	Table 8	Table 8
1	Automated	°C	Table 8	Table 8
		°F	Table 8	Table 8
2,3,4	Manual	°C	Table 9	Table 9
		°F	Table 9	Table 9
2,3,4	Automated	°C	Table 10	Table 10
		°F	Table 10	Table 10

A2. DETAILED DESCRIPTION OF APPARATUS

A2.1 *Distillation Flasks*—Flasks shall be of heat resistant glass, constructed to the dimensions and tolerances shown in Fig. A2.1 and shall otherwise comply with the requirements of Specification E 1405. Flask A (100 mL) may also be constructed with a ground glass joint, in which case the diameter of the neck shall be the same as the 125-mL flask.

NOTE A2.1—For tests specifying dry point, specially selected flasks with bottoms and walls of uniform thickness are desirable.

A2.2 *Condenser and Condenser Bath*—Typical types of condenser and condenser baths are illustrated in Figs. 1 and 2.

A2.2.1 The condenser shall be made of seamless noncorrosive metal tubing, 560 ± 5 mm in length, with an outside diameter of 14 mm and a wall thickness of 0.8 to 0.9 mm.

NOTE A2.2—Brass or stainless steel has been found to be a suitable material for this purpose.

A2.2.2 The condenser shall be set so that 393 ± 3 mm of the tube is in contact with the cooling medium, with 50 ± 3 mm outside the cooling bath at the upper end, and with 114 ± 3 mm outside at the lower end. The portion of the tube projecting at the upper end shall be set at an angle of 75 ± 3° with the vertical. The portion of the tube inside the condenser bath shall be either straight or bent in any suitable continuous smooth curve. The average gradient shall be 15 ± 1° with respect to the horizontal, with no 10-cm section having a gradient outside of the 15 ± 3° range. The projecting lower portion of the condenser tube shall be curved downward for a length of 76 mm and the lower end shall be cut off at an acute angle. Provisions shall be made to enable the flow of the distillate to run down the side of the receiving cylinder. This can be accomplished by using a drip-deflector, which is attached to the outlet of the tube. Alternatively, the lower portion of the condenser tube can be curved slightly backward to ensure



contact with the wall of the receiving cylinder at a point 25 to 32 mm below the top of the receiving cylinder. Fig. A2.3 is a drawing of an acceptable configuration of the lower end of the condenser tube.

A2.2.3 The volume and the design of the bath will depend on the cooling medium employed. The cooling capacity of the bath shall be adequate to maintain the required temperature for the desired condenser performance. A single condenser bath may be used for several condenser tubes.

A2.3 *Metal Shield or Enclosure for Flask.* (Manual units only).

A2.3.1 *Shield for Gas Burner* (see Fig. 1)—The purpose of this shield is to provide protection for the operator and yet allow easy access to the burner and to the distillation flask during operation. A typical shield would be 480-mm high, 280-mm long and 200-mm wide, made of sheet metal of 0.8-mm thickness (22 gauge). The shield shall be provided with at least one window to observe the dry point at the end of the distillation.

A2.3.2 *Shield for Electric Heater* (see Fig. 2)—A typical shield would be 440-mm high, 200-mm long, and 200-mm wide, made of sheet metal of approximately 0.8-mm thickness (22 gauge) and with a window in the front side. The shield shall be provided with at least one window to observe the dry point at the end of the distillation.

A2.4 *Heat Source:*

A2.4.1 *Gas Burner* (see Fig. 1), capable of bringing over the first drop from a cold start within the time specified and of continuing the distillation at the specified rate. A sensitive manual control valve and gas pressure regulator to give complete control of heating shall be provided.

A2.4.2 *Electric Heater* (see Fig. 2), of low heat retention.

NOTE A2.3—Heaters, adjustable from 0 to 1000 W, have been found to be suitable for this purpose.

A2.5 *Flask Support:*

A2.5.1 *Type 1*—Use a Type 1 flask support with a gas burner (see Fig. 1). This support consists of either a ring support of the ordinary laboratory type, 100 mm or larger in diameter, supported on a stand inside the shield, or a platform adjustable from the outside of the shield. On this ring or platform is mounted a hard board made of ceramic or other heat-resistant material, 3 to 6 mm in thickness, with a central opening 76 to 100 mm in diameter, and outside line dimensions slightly smaller than the inside boundaries of the shield.

A2.5.2 *Type 2*—Use a Type 2 flask support assembly with electric heating (see Fig. 2 as one example). The assembly consists of an adjustable system onto which the electric heater is mounted with provision for placement of a flask support board (see A2.6) above the electric heater. The whole assembly is adjustable from the outside of the shield.

A2.6 *Flask Support Board*—The flask support board shall be constructed of ceramic or other heat-resistant material, 3 to 6 mm in thickness. Flask support boards are classified as A, B, or C, based on the size of the centrally located opening, the dimension of which is shown in Table 1. The flask support board shall be of sufficient dimension to ensure that thermal heat to the flask only comes from the central opening and that extraneous heat to the flask other than through the central opening is minimized. (**Warning**—Asbestos-containing materials shall not be used in the construction of the flask support board.)

A2.7 The flask support board can be moved slightly in different directions on the horizontal plane to position the distillation flask so that direct heat is applied to the flask only through the opening in this board. Usually, the position of the flask is set by adjusting the length of the side-arm inserted into the condenser.

A2.8 Provision shall be made for moving the flask support assembly vertically so that the flask support board is in direct contact with the bottom of the distillation flask during the distillation. The assembly is moved down to allow for easy mounting and removal of the distillation flask from the unit.

A2.9 *Receiving Cylinders*—The receiving cylinder shall have a capacity to measure and collect 100 mL. The shape of the base shall be such that the receiver does not topple when placed empty on a surface inclined at an angle of 13° from the horizontal.

A2.9.1 *Manual Method*—The cylinder shall be graduated at intervals of 1 mL and have a graduation at the 100-mL mark. Construction details and tolerances for the graduated cylinder are shown in Fig. A2.4.

A2.9.2 *Automated Method*—The cylinder shall conform to the physical specifications described in Fig. A2.4, except that graduations below the 100-mL mark are permitted, as long as they do not interfere with the operation of the level follower. Receiving cylinders for use in automated units may also have a metal base.

A2.9.3 If required, the receiving cylinder shall be immersed during the distillation to above the 100-mL graduation line in a cooling liquid contained in a cooling bath, such as a tall-form beaker of clear glass or transparent plastic. Alternatively, the receiving cylinder may be placed in a thermostated bath air circulation chamber.

A2.10 *Residue Cylinder*—The graduated cylinder shall have a capacity of 5 or 10 mL, with graduations into 0.1 mL subdivisions, beginning at 0.1 mL. The top of the cylinder may be flared, the other properties shall conform to Specification E 1272.

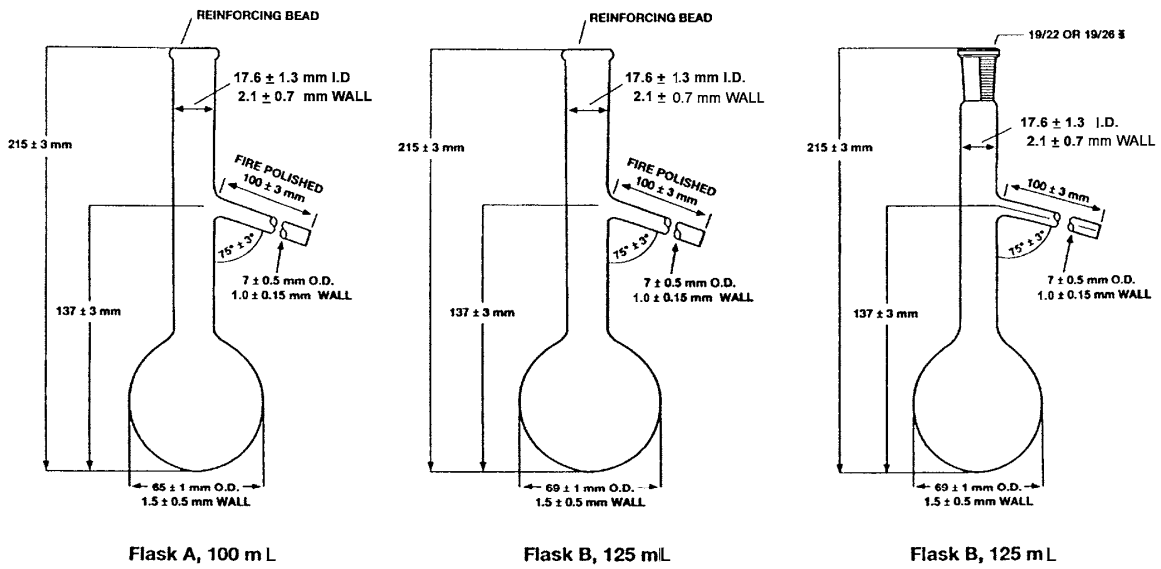


FIG. A2.1 Flask A, 100 mL, Flask B, 125 mL, and Flask B with Ground Glass Joint, 125 mL

D 86 - 07

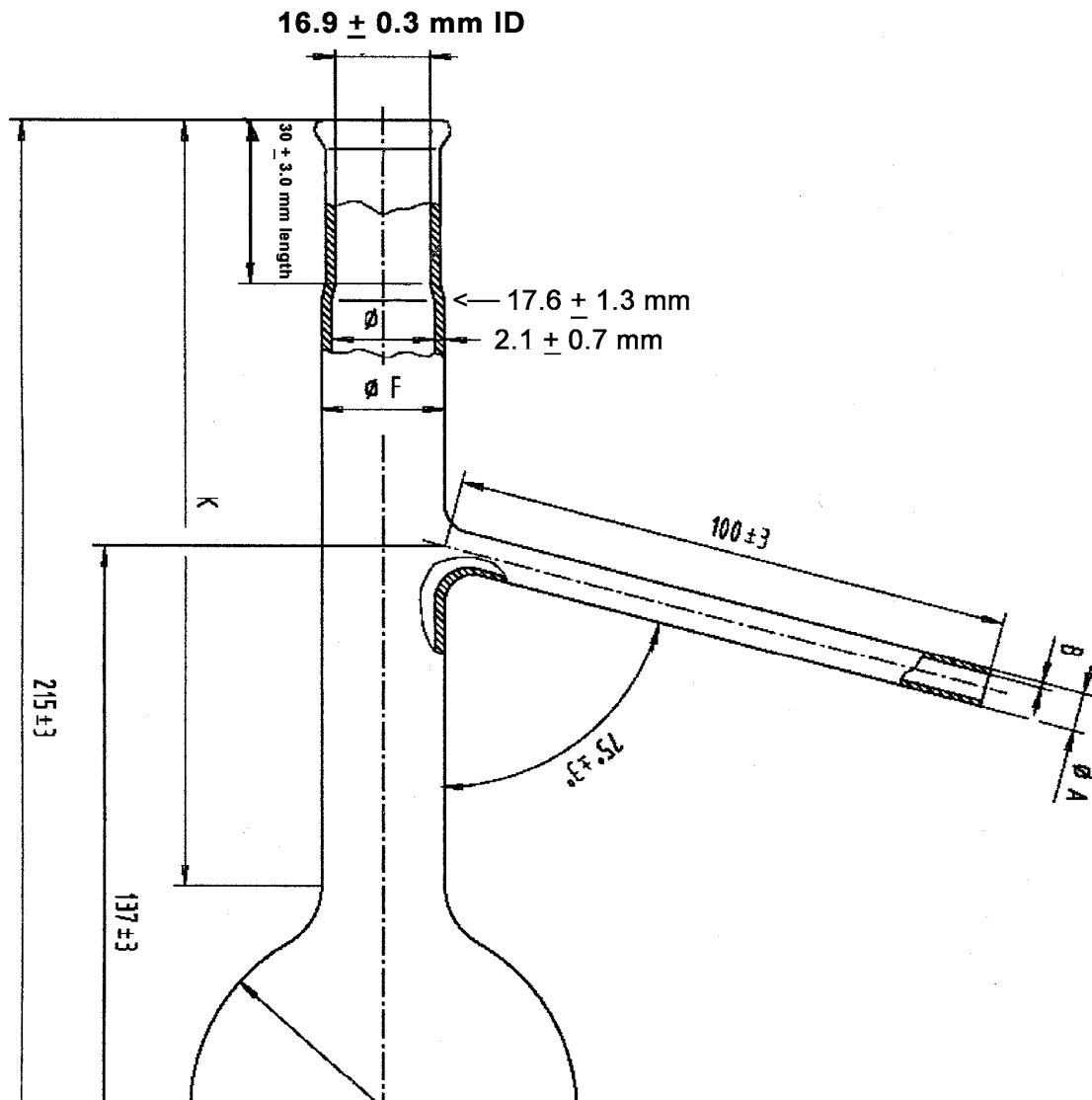

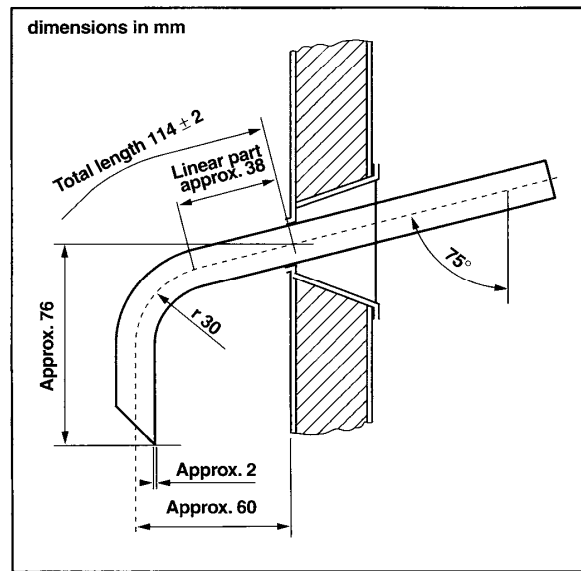
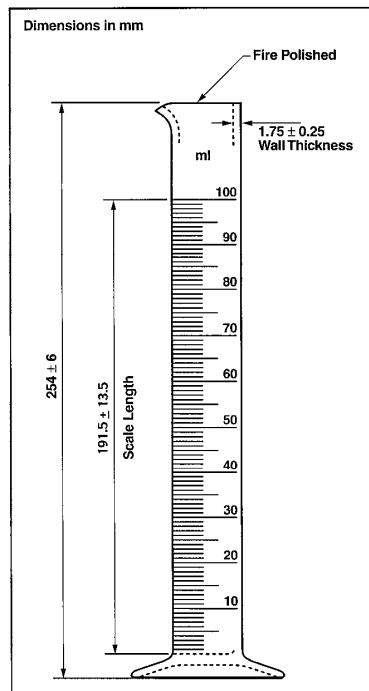


FIG. A2.2 Detail of Upper Neck Section

 D 86 – 07



Lower End of Condenser Tube
FIG. A2.3 Lower End of Condenser Tube



NOTE—1 to 100 mL in 1 mL graduations; tolerance ± 1.0 mL.
FIG. A2.4 100 mL Graduated Cylinder



A3. DETERMINATION OF THE DIFFERENCE IN LAG TIME BETWEEN AN ELECTRONIC TEMPERATURE MEASUREMENT SYSTEM AND A MERCURY-IN-GLASS THERMOMETER

A3.1 The response time of an electronic temperature measuring device is inherently more rapid than that of a mercury-in-glass thermometer. The temperature measuring device assembly in general use, consisting of the sensor and its casing, or an electronic system and its associated software, or both, is so designed that the temperature measuring system will simulate the temperature lag of the mercury-in-glass thermometer.

A3.2 To determine the difference in lag time between such a temperature measuring system and a mercury-in-glass thermometer, analyze a sample such as gasoline, kerosine, jet fuel, or light diesel fuel with the electronic temperature measurement system in place and in accordance with the procedures described in this test method. In most cases this is the standard distillation step performed with an automated unit.

A3.2.1 Do not use a single pure compound, a very narrow boiling range product, or a synthetic blend of less than six compounds for this test.

A3.2.2 Best results are obtained with a sample that is typical of the sample load of the laboratory. Alternatively, use a full-range mixture with a 5 to 95 % boiling range of at least 100°C.

A3.3 Replace the electronic temperature measuring device with a low range or a high range mercury-in-glass thermometer, depending on the boiling range of the sample.

A3.4 Repeat the distillation with this thermometer, and manually record the temperature at the various percent recovered as described in 10.14.

A3.5 Calculate the values for the repeatability for the observed slope ($\Delta T/\Delta V$) for the different readings in the test.

A3.6 Compare the test data obtained using these two temperature measuring devices. The difference at any point shall be equal to, or less than, the repeatability of the method at that point. If this difference is larger, replace the electronic temperature measuring device or adjust the electronics involved, or both.

A4. PROCEDURE TO DETERMINE THE PERCENT EVAPORATED OR PERCENT RECOVERED AT A PRESCRIBED TEMPERATURE READING

A4.1 Many specifications require specific percentages evaporated or recovered at prescribed temperature readings, either as maxima, minima, or ranges. The procedures to determine these values are frequently designated by the terms Exxx or Rxxx, where xxx is the desired temperature.

NOTE A4.1—Regulatory standards on the certification of reformulated gasoline under the complex model procedure require the determination of E 200 and E 300, defined as the percent evaporated fuel at 93.3°C (200°F) and 148.9°C (300°F), respectively. E 158, the percent evaporated at a distillation temperature of 70°C (158°F), is also used in describing fuel volatility characteristics. Other typical temperatures are R 200 for kerosines and R 250 and R 350 for gas oils, where R 200, R 250, and R 350 are the percent recovered fuel at 200°C, 250°C, and 350°C, respectively.

A4.2 Determine the barometric pressure, and calculate the correction to the desired temperature reading using Eq 3, Eq 4, or Eq 5 for $t = \text{xxx}^\circ\text{C}$ (or $t_f = \text{xxx}^\circ\text{F}$).

A4.2.1 *Manual Method*—Determine this correction to 0.5°C (1°F).

A4.2.2 *Automated Method*—Determine this correction to 0.1°C (0.2°F).

A4.3 Determine the expected temperature reading to yield xxx°C (or xxx°F) after the barometric correction. To obtain the expected value, add the absolute value of the calculated correction to the desired temperature if the barometric pressure is above 101.3 kPa. If the barometric pressure is below 101.3 kPa, subtract the absolute value of the calculated correction from the desired temperature.

A4.4 Perform the distillation, as described in Section 10,

while taking into account A4.5 and A4.6.

A4.5 *Manual Distillation:*

A4.5.1 In the region between about 10°C below and 10°C above the desired expected temperature reading determined in A4.3 record the temperature reading in intervals of 1 volume %.

A4.5.2 If the intent of the distillation is to solely determine the value of Exxx or Rxxx, discontinue the distillation after at least another 2 mL of distillate have been collected. Otherwise, continue the distillation, as described in Section 10, and determine the observed loss, as described in 11.1.

A4.5.2.1 If the intent of the distillation is to determine the value of Exxx and the distillation was terminated after about 2 mL of distillate was collected beyond the desired temperature, allow the distillate to drain into the receiving graduate. Allow the contents of the flask to cool to below approximately 40°C and then drain its contents into the receiving graduate. Note the volume of product in the receiving graduate to the nearest 0.5 mL at 2 min intervals until two successive observations agree.

A4.5.2.2 The amount recovered in the receiving graduate is the percent recovery. Determine the amount of observed loss by subtracting the percent recovery from 100.0.

A4.6 *Automated Distillation:*

A4.6.1 In the region between about 10°C below and 10°C above the desired expected temperature reading determined in A4.3, collect temperature-volume data at 0.1 volume % intervals or less.



D 86 – 07

A4.6.2 Continue the distillation, as described in Section 10, and determine the percent loss, as described in 11.1.

A4.7 Calculations:

A4.7.1 *Manual Method*—If a volume % recovered reading is not available at the exact temperature calculated in A4.3, determine the percent recovered by interpolation between the two adjacent readings. Either the linear, as described in 11.6.1, or the graphical procedure, as described in 11.6.2, is permitted. The percent recovered is equal to Rxxx.

A4.7.2 *Automated Method*—Report the observed volume to 0.1 volume % corresponding to the temperature closest to the expected temperature reading. This is the percent recovered, or Rxxx.

A4.7.3 *Manual and Automated Methods*—To determine the value of Exxx, add the observed loss to the percent recovered, Rxxx, as determined in A4.7.1 or A4.7.2 and as described in Eq 9.

A4.7.3.1 As prescribed in 12.6, do not use the corrected loss.

A4.8 Precision:

A4.8.1 The statistical determination of the precision of the volume % evaporated or recovered at a prescribed temperature has not been directly measured in an interlaboratory program. It can be shown that the precision of the volume % evaporated or recovered at a prescribed temperature is equivalent to the precision of the temperature measurement at that point divided by the rate of change of temperature versus volume % evaporated or recovered. The estimation of precision becomes less precise at high slope values.

A4.8.2 Calculate the slope or rate of change in temperature reading, S_C (or S_F), as described in 13.2 and Eq 11 and using temperature values bracketing the desired temperature.

A4.8.3 Calculate the repeatability, r , or the reproducibility, R , from the slope, S_C (or S_F), and the data in Table 8, Table 9, or Table 10.

A4.8.4 Determine the repeatability or reproducibility, or both, of the volume % evaporated or recovered at a prescribed temperature from the following formulas:

$$r_{\text{volume \%}} = r/S_C (S_F) \quad (\text{A4.1})$$

$$R_{\text{volume \%}} = R/S_C (S_F) \quad (\text{A4.2})$$

where:

$r_{\text{volume \%}}$ = repeatability of the volume % evaporated or recovered,

$R_{\text{volume \%}}$ = reproducibility of the volume % evaporated or recovered,

r = repeatability of the temperature at the prescribed temperature at the observed percent distilled,

R = reproducibility of the temperature at the prescribed temperature at the observed percent distilled, and

$S_C(S_F)$ = rate of change in temperature reading in °C (°F) per the volume % evaporated or recovered.

A4.8.5 Examples on how to calculate the repeatability and the reproducibility are shown in Appendix X2.

APPENDIXES

(Nonmandatory Information)

X1. EXAMPLES ILLUSTRATING CALCULATIONS FOR REPORTING OF DATA

X1.1 The observed distillation data used for the calculation of the examples below are shown in the first three columns of Fig. X1.1.

X1.1.1 Temperature readings corrected to 101.3 kPa (760 mm Hg) pressure (see 11.3) are as follows:

$$\text{correction } (^{\circ}\text{C}) = 0.0009 (101.3 - 98.6) (273 + t_c) \quad (\text{X1.1})$$

$$\text{correction } (^{\circ}\text{F}) = 0.00012 (760 - 740) (460 + t_p) \quad (\text{X1.2})$$

X1.1.2 Loss correction to 101.3 kPa (see 11.4) are as follows. The data for the examples are taken from Fig. X1.1.

$$\text{corrected loss} = (0.5 + (4.7 - 0.5)/ \quad (\text{X1.3})$$

$$\{1 + (101.3 - 98.6)/8.0\} = 3.6$$

X1.1.3 Recovery correction to 101.3 kPa (see 11.4.1) are as follows:

$$\text{corrected recovery} = 94.2 + (4.7 - 3.6) = 95.3 \quad (\text{X1.4})$$

X1.2 *Temperature Readings at Prescribed Percent Evaporated:*

X1.2.1 Temperature reading at 10 % evaporated (4.7 % observed loss = 5.3 % recovered) (see 11.6.1) are as follows:

$$T_{10E} (^{\circ}\text{C}) = 33.7 + [(40.3 - 33.7) \quad (\text{X1.5})$$

$$(5.3 - 5)/(10 - 5)] = 34.1^{\circ}\text{C}$$

$$T_{10E} (^{\circ}\text{F}) = 92.7 + [(104.5 - 92.7) \quad (\text{X1.6})$$

$$(5.3 - 5)/(10 - 5)] = 93.1^{\circ}\text{F}$$

X1.2.2 Temperature reading at 50 % evaporated (45.3 % recovered) (see 11.6.1) are as follows:

$$T_{50E} (^{\circ}\text{C}) = 93.9 + [(108.9 - 93.9) \quad (\text{X1.7})$$

$$(45.3 - 40)/(50 - 40)] = 101.9^{\circ}\text{C}$$

$$T_{50E} (^{\circ}\text{F}) = 201 + [(228 - 201) \quad (\text{X1.8})$$

$$(45.3 - 40)/(50 - 40)] = 215.3^{\circ}\text{F}$$

X1.2.3 Temperature reading at 90 % evaporated (85.3 % recovered) (see 11.6.1) are as follows:

$$T_{90E} (^{\circ}\text{C}) = 181.6 + [(201.6 - 181.6) \quad (\text{X1.9})$$

$$(85.3 - 85)/(90 - 85)] = 182.8^{\circ}\text{C}$$

Case 1:13-cv-01215-TSC Document 118-7 Filed 11/19/15 Page 128 of 267



D 86 – 07

$$T_{90E} (^{\circ}F) = 358.9 + [(394.8 - 358.9) \quad (X1.10)$$

$$(85.3 - 85)/(90 - 85)] = 361.0^{\circ}F$$

X1.2.4 Temperature reading at 90 % evaporated (85.3 % recovered) not corrected to 101.3 kPa pressure (see 11.6.1) are as follows:

$$T_{90E} (^{\circ}C) = 180.5 + [(200.4 - 180.5) \quad (X1.11)$$

$$(85.3 - 85)/(90 - 85)] = 181.7^{\circ}C$$

$$T_{90E} (^{\circ}F) = 357 + [(392 - 357) \quad (X1.12)$$

$$(85.3 - 85)/(90 - 85)] = 359.1^{\circ}F$$

NOTE X1.1—Results calculated from $^{\circ}C$ data may not correspond exactly to results calculated from $^{\circ}F$ data because of errors in rounding.

Sample ID:
Date analyzed:
Equipment No:
Remarks:

Barometric pressure: 98.6 kPa
Analyst:

X recovered	Barometric pressure				X evaporated	procedure	
	observed 98.6 kPa 740 mm Hg	$^{\circ}C$	$^{\circ}F$	corrected 101.3 kPa 760 mm Hg		arithmetic	graphical
	$^{\circ}C$	$^{\circ}F$	$^{\circ}C$	$^{\circ}F$		T_{evap} $^{\circ}C$	$^{\circ}F$
IBP	25.5	78	26.2	79.2	5	26.7	80.0
5	33.0	91	33.7	92.7	10	34.1	93.4
10	39.5	103	40.3	104.5	15	40.7	105.2
15	46.0	115	46.8	116.2	20	47.3	117.1
20	54.5	130	55.3	131.5	30	65.7	150.2
30	74.0	165	74.8	166.7	40	84.9	184.9
40	93.0	199	93.9	201.0	50	101.9	215.3
50	108.0	226	108.9	228.0	60	116.9	242.4
60	123.0	253	124.0	255.1	70	134.1	273.3
70	142.0	288	143.0	289.4	80	156.0	312.8
80	166.5	332	167.6	333.6	85	168.4	335.1
85	180.5	357	181.6	358.9	90	182.8	361.0
90	200.4	393	201.6	394.8	95	202.4	396.3
EP	215.0	419	216.2	421.1			
recovered, %	94.2		95.3				
residue, %	1.1		1.1				
loss, %	4.7		3.6				

FIG. X1.1 Example of Test Report



D 86 – 07

X2. EXAMPLES OF CALCULATION OF REPEATABILITY AND REPRODUCIBILITY OF VOLUME % (RECOVERED OR EVAPORATED) AT A PRESCRIBED TEMPERATURE READING

X2.1 Some specifications require the reporting of the volume % evaporated or recovered at a prescribed temperature. Table X2.1 shows the distillation data of a Group 1 sample as obtained by an automated unit.

X2.2 Example Calculation:

X2.2.1 For a Group 1 sample exhibiting distillation characteristics as per Table X2.1, as determined by an automated unit, the reproducibility of the volume evaporated, R_{volume} %, at 93.3°C (200°F) is determined as follows:

X2.2.1.1 Determine first the slope at the desired temperature:

$$S_C \% = 0.1 (T_{(20)} - T_{(10)}) \quad (\text{X2.1})$$

$$= 0.1 (94 - 83)$$

$$= 1.1$$

$$S_F \% = 0.1 (T_{(20)} - T_{(10)})$$

$$= 0.1 (201 - 182)$$

$$= 1.9$$

X2.2.2 From Table 9, determine the value of R , the reproducibility at the observed percentage distilled. In this case, the observed percentage distilled is 18 % and

$$R = 3.3 + 2.0 (S_C) \quad (\text{X2.2})$$

$$= 3.3 + 2.0 \times 1.1$$

$$= 5.5$$

$$R = 6.0 + 2.0 (S_F)$$

$$= 6.0 + 2.0 \times 1.9$$

$$= 9.8$$

X2.2.3 From the calculated value of R , determine the value of volume, as described in A4.8.4.

$$R \text{ volume \%} = R/(S_C) \quad (\text{X2.3})$$

$$= 5.5/1.1$$

$$= 5.0$$

$$R \text{ volume \%} = R/(S_F)$$

$$= 9.8/1.9$$

$$= 5.1$$

TABLE X2.1 Distillation Data from a Group 1 Sample Automated Distillation

Distillation Point Recovered, mL	Temperature° C	Temperature °F	Volume (mL) Recovered at 93.3°C (200°F)
10	84	183	18.0
20	94	202	
30	103	217	
40	112	233	
Distillation Point Evaporated, mL	Temperature° C	Temperature °F	Volume (mL) Evaporated at 93.3°C (200°F)
10	83	182	18.4
20	94	201	
30	103	217	
40	111	232	

X3. TABLES OF CORRECTED LOSS FROM MEASURED LOSS AND BAROMETRIC PRESSURE

X3.1 The table presented as Fig. X3.1 can be used to determine the corrected loss from the measured loss and the barometric pressure in kPa.

X3.2 The table presented as Fig. X3.2 can be used to determine the corrected loss from the measured loss and the barometric pressure in mm Hg.



D 86 - 07

Barometric Pressure, kPa

	from through	76.1 80.8	80.9 84.4	84.5 87.2	87.3 89.5	89.6 91.4	91.5 93.0	93.1 94.0	94.1 95.4	95.5 96.3	96.4 97.1	97.2 97.8	97.9 98.3	98.4 98.8	98.9 99.4	99.5 99.9	100.0 100.3	100.4 100.7	100.8 101.1	101.2 101.4	101.5 101.9	102.0 102.3	102.4 102.7	102.8 103.1	103.2 103.5
Observed Loss	/ -- Corrected Loss ----->																								
Units	0	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.23	0.20	0.18	0.16	0.14	0.13	0.11	0.09	0.06	0.04	0.02	-0.00	-0.02	-0.06	-0.09	-0.13	-0.17
1	0.63	0.65	0.67	0.69	0.71	0.73	0.75	0.78	0.80	0.82	0.84	0.86	0.87	0.89	0.92	0.94	0.96	0.98	1.00	1.03	1.06	1.09	1.13	1.17	1.21
2	0.89	0.95	1.01	1.08	1.14	1.20	1.26	1.33	1.40	1.46	1.52	1.57	1.62	1.68	1.75	1.81	1.87	1.94	2.00	2.08	2.17	2.27	2.38	2.51	2.65
3	1.15	1.25	1.36	1.46	1.57	1.67	1.77	1.88	1.99	2.09	2.19	2.28	2.37	2.47	2.58	2.69	2.79	2.90	3.00	3.13	3.29	3.45	3.63	3.84	4.07
4	1.41	1.56	1.70	1.84	1.99	2.14	2.28	2.43	2.59	2.73	2.87	3.00	3.12	3.26	3.41	3.56	3.70	3.85	4.00	4.18	4.40	4.63	4.89	5.18	5.49
5	1.68	1.86	2.04	2.23	2.42	2.61	2.79	2.98	3.19	3.37	3.55	3.71	3.87	4.05	4.25	4.44	4.62	4.81	5.00	5.23	5.51	5.81	6.14	6.52	6.92
6	1.94	2.16	2.39	2.61	2.84	3.08	3.30	3.53	3.78	4.01	4.23	4.42	4.62	4.84	5.08	5.31	5.53	5.77	6.00	6.28	6.63	6.99	7.40	7.86	8.34
7	2.20	2.46	2.73	3.00	3.27	3.55	3.80	4.08	4.38	4.65	4.90	5.14	5.37	5.63	5.91	6.18	6.44	6.73	7.00	7.33	7.74	8.17	8.65	9.20	9.76
8	2.46	2.76	3.07	3.38	3.70	4.02	4.31	4.63	4.98	5.28	5.58	5.85	6.12	6.41	6.74	7.06	7.36	7.69	8.00	8.38	8.86	9.35	9.90	10.53	11.17
9	2.72	3.07	3.41	3.76	4.12	4.49	4.82	5.18	5.57	5.92	6.26	6.56	6.87	7.20	7.57	7.93	8.27	8.65	9.00	9.43	9.97	10.53	11.16	11.87	12.61
10	2.98	3.37	3.76	4.15	4.55	4.96	5.33	5.73	6.17	6.56	6.94	7.28	7.62	7.99	8.41	8.81	9.19	9.60	10.00	10.48	11.08	11.71	12.41	13.21	14.05
11	3.24	3.67	4.10	4.53	4.97	5.43	5.84	6.28	6.77	7.20	7.61	7.99	8.37	8.78	9.24	9.68	10.10	10.56	11.00	11.53	12.20	12.89	13.67	14.55	15.49
12	3.50	3.97	4.44	4.92	5.40	5.90	6.35	6.83	7.36	7.84	8.29	8.71	9.12	9.57	10.07	10.56	11.02	11.52	12.00	12.59	13.31	14.07	14.92	15.89	16.91
13	3.76	4.27	4.78	5.30	5.83	6.36	6.86	7.39	7.96	8.47	8.97	9.42	9.86	10.36	10.90	11.43	11.93	12.48	13.00	13.64	14.43	15.25	16.17	17.22	18.34
14	4.03	4.58	5.13	5.69	6.25	6.83	7.36	7.94	8.56	9.11	9.64	10.13	10.61	11.15	11.74	12.31	12.85	13.44	14.00	14.69	15.54	16.43	17.43	18.56	19.74
15	4.29	4.88	5.47	6.07	6.68	7.30	7.87	8.49	9.15	9.75	10.32	10.85	11.36	11.93	12.57	13.18	13.76	14.40	15.00	15.74	16.66	17.61	18.68	19.90	21.17
16	4.55	5.18	5.81	6.45	7.10	7.77	8.38	9.04	9.75	10.39	11.00	11.56	12.11	12.72	13.40	14.06	14.68	15.36	16.00	16.79	17.77	18.79	19.94	21.24	22.59
17	4.81	5.48	6.16	6.84	7.53	8.24	8.89	9.59	10.35	11.03	11.68	12.27	12.86	13.51	14.23	14.93	15.59	16.31	17.00	17.84	18.88	19.97	21.19	22.58	24.03
18	5.07	5.78	6.50	7.22	7.96	8.71	9.40	10.14	10.94	11.66	12.35	12.99	13.61	14.30	15.07	15.80	16.50	17.27	18.00	18.89	20.00	21.15	22.44	23.91	25.42
19	5.33	6.08	6.84	7.61	8.38	9.18	9.91	10.69	11.54	12.30	13.03	13.70	14.36	15.09	15.90	16.68	17.42	18.23	19.00	19.94	21.11	22.33	23.70	25.25	26.86
20	5.59	6.39	7.18	7.99	8.81	9.65	10.41	11.24	12.14	12.94	13.71	14.41	15.11	15.88	16.73	17.55	18.33	19.19	20.00	20.99	22.23	23.51	24.95	26.59	28.31
Tenths	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.1	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.10	0.11	0.11	0.12	0.13	0.13	0.13
0.2	0.05	0.06	0.07	0.08	0.09	0.09	0.10	0.11	0.12	0.13	0.14	0.14	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.24	0.25	0.27	0.27
0.3	0.08	0.09	0.10	0.12	0.13	0.14	0.15	0.17	0.18	0.19	0.20	0.21	0.22	0.24	0.25	0.26	0.27	0.29	0.30	0.32	0.33	0.35	0.38	0.40	0.40
0.4	0.10	0.12	0.14	0.15	0.17	0.19	0.20	0.22	0.24	0.26	0.27	0.29	0.30	0.32	0.33	0.35	0.37	0.38	0.40	0.42	0.45	0.47	0.50	0.54	0.54
0.5	0.13	0.15	0.17	0.19	0.21	0.23	0.25	0.28	0.30	0.32	0.34	0.36	0.37	0.39	0.42	0.44	0.46	0.48	0.50	0.53	0.56	0.59	0.63	0.67	0.67
0.6	0.16	0.18	0.21	0.23	0.26	0.28	0.31	0.33	0.36	0.38	0.41	0.43	0.45	0.47	0.50	0.52	0.55	0.58	0.60	0.63	0.67	0.71	0.75	0.80	0.80
0.7	0.18	0.21	0.24	0.27	0.30	0.33	0.36	0.39	0.42	0.45	0.47	0.50	0.52	0.55	0.58	0.61	0.64	0.67	0.70	0.74	0.78	0.83	0.88	0.94	0.94
0.8	0.21	0.24	0.27	0.31	0.34	0.38	0.41	0.44	0.48	0.51	0.54	0.57	0.60	0.63	0.67	0.70	0.73	0.77	0.80	0.84	0.89	0.94	1.00	1.07	1.07
0.9	0.24	0.27	0.31	0.35	0.38	0.42	0.46	0.50	0.54	0.57	0.61	0.64	0.67	0.71	0.75	0.79	0.82	0.86	0.90	0.95	1.00	1.06	1.13	1.20	1.20

FIG. X3.1 Corrected Loss from Observed Loss and Barometric Pressure kPa

Barometric Pressure, mm Hg.

	from through	571 606	607 633	634 654	655 671	672 685	686 697	698 705	706 715	716 722	723 728	729 733	734 737	738 741	742 745	746 749	750 752	753 755	756 758	759 761	762 764	765 767	768 770	771 773	774 776
Observed Loss	/ -- Corrected Loss ----->																								
Units	0	0.37	0.35	0.33	0.31	0.29	0.27	0.25	0.23	0.20	0.18	0.16	0.14	0.13	0.11	0.09	0.07	0.05	0.02	-0.00	-0.03	-0.06	-0.09	-0.13	-0.17
1	0.63	0.65	0.67	0.69	0.71	0.73	0.75	0.77	0.80	0.82	0.84	0.86	0.87	0.89	0.91	0.93	0.95	0.98	1.00	1.03	1.06	1.09	1.13	1.17	1.21
2	0.89	0.95	1.01	1.07	1.14	1.20	1.26	1.32	1.39	1.45	1.51	1.57	1.62	1.68	1.74	1.80	1.86	1.93	2.00	2.08	2.17	2.27	2.38	2.50	2.65
3	1.15	1.25	1.36	1.46	1.56	1.67	1.77	1.87	1.99	2.09	2.19	2.28	2.36	2.46	2.57	2.67	2.77	2.88	3.00	3.13	3.28	3.44	3.63	3.83	4.07
4	1.41	1.55	1.70	1.84	1.99	2.14	2.27	2.42	2.58	2.72	2.86	2.99	3.11	3.25	3.40	3.54	3.68	3.83	4.00	4.19	4.39	4.62	4.88	5.17	5.49
5	1.67	1.86	2.04	2.22	2.41	2.61	2.78	2.97	3.18	3.36	3.54	3.70	3.86	4.03	4.23	4.41	4.59	4.79	5.00	5.24	5.50	5.80	6.13	6.50	6.90
6	1.93	2.16	2.38	2.61	2.84	3.07	3.29	3.52	3.77	3.99	4.21	4.41	4.60	4.82	5.05	5.28	5.50	5.74	6.00	6.29	6.61	6.97	7.38	7.84	8.33
7	2.19	2.46	2.72	2.99	3.26	3.54	3.79	4.07	4.36	4.63	4.88	5.12	5.35	5.60	5.88	6.15	6.41	6.69	7.00	7.34	7.72	8.15	8.63	9.17	9.75
8	2.46	2.76	3.07	3.37	3.69	4.01	4.30	4.62	4.96	5.27	5.56	5.83	6.09	6.38	6.71	7.02	7.32	7.64	8.00	8.40	8.84	9.33	9.88	10.50	11.13
9	2.72	3.06	3.41	3.76	4.11	4.48	4.81	5.17	5.55	5.90	6.23	6.54	6.84	7.17	7.54	7.89	8.23	8.60	9.00	9.45	9.95	10.50	11.13	11.84	12.57
10	2.98	3.36	3.75	4.14	4.54	4.94	5.31	5.71	6.15	6.54	6.91	7.25	7.58	7.95	8.37	8.76	9.14	9.55	10.00	10.50	11.06	11.68	12.38	13.17	13.99
11	3.24	3.66	4.09	4.52	4.96	5.41	5.82	6.26	6.74	7.17	7.58	7.96	8.33	8.74	9.19	9.63	10.05	10.50	11.00	11.56	12.17	12.86	13.63	14.51	15.44
12	3.50	3.96	4.43	4.91	5.39	5.88	6.33	6.81	7.34	7.81	8.26	8.67	9.07	9.52	10.02	10.50	10.96	11.46	12.00	12.61	13.28	14.03	14.88	15.84	16.84
13	3.76	4.27	4.78	5.29	5.81	6.35	6.83	7.36	7.93	8.44	8.93	9.38	9.82	10.31	10.85	11.37	11.87	12.41	13.00	13.66	14.39	15.21	16.13	17.17	18.31
14	4.02	4.57	5.12	5.67	6.24	6.82	7.34	7.91	8.53	9.08	9.61	10.09	10.57	11.09	11.68	12.24	12.78	13.36	14.00	14.71	15.51	16.39	17.38	18.51	19.69
15	4.28	4.87	5.46	6.06	6.66	7.28	7.85	8.46	9.12	9.71	10.28	10.80	11.31	11.88	12.51	13.11	13.68	14.31	15.00	15.77	16.62	17.57	18.63	19.84	21.09
16	4.54	5.17	5.80	6.44	7.09	7.75	8.35	9.01	9.72	10.35	10.95	11.51	12.06	12.63	13.33	13.98	14.59	15.27	16.00	16.82	17.73	18.74	19.88	21.16	22.48
17	4.80	5.47	6.14	6.82	7.51	8.22	8.86	9.56	10.31	10.98	11.63	12.22	12.80	13.45	14.16	14.85	15.50	16.22	17.00	17.87	18.84	19.92	21.13	22.51	23.94
18	5.06	5.77	6.49	7.21	7.94	8.69	9.37	10.11	10.91	11.62	12.30	12.93	13.55	14.23	14.99	15.72	16.41	17.17	18.00	18.93	19.95	21.10	22.38	23.84	25.35
19	5.32	6.07	6.83	7.59	8.36	9.15	9.88	10.65	11.50	12.25	12.98	13.64	14.29	15.02	15.82	16.59	17.32	18.12	19.01	19.98	21.02	22.27	23.64	25.18	26.76
20	5.58	6.37	7.17	7.97	8.79	9.62	10.38	11.20	12.09	12.89	13.65	14.35	15.04	15.80	16.64	17.46	18.23	19.08	20.01	21.03	22.17	23.45	24.89	26.51	28.19
Tenths	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.1	0.03	0.03	0.03	0.04	0.04	0.05	0.05	0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.12	0.13	0.13	0.13
0.2	0.05	0.06	0.07	0.08	0.08	0.09	0.10	0.11	0.12	0.13	0.13	0.14	0.15	0.16	0.17	0.17	0.18	0.19	0.20	0.21	0.22	0.24	0.25	0.27	0.29
0.3	0.08	0.09	0.10	0.11	0.13	0.14	0.15	0.16	0.18	0.19	0.20	0.21	0.22	0.24	0.25	0.26	0.27	0.29	0.30	0.32	0.33	0.35	0.36	0.40	0.43
0.4	0.10	0.12	0.14	0.15	0.17	0.18	0.20	0.21	0.23	0.25	0.27	0.28	0.30	0.31	0.33	0.35	0.36	0.38	0.40	0.42	0.44	0.46	0.50	0.53	0.57
0.5	0.13	0.15	0.17	0.19	0.21	0.23	0.25	0.27	0.30	0.32	0.34	0.36	0.37	0.39	0.41	0.43	0.45	0.48	0.50	0.53	0.56	0.59	0.63	0.67	0.71
0.6	0.16	0.18	0.21	0.23	0.25	0.28	0.30	0.33	0.36	0.38	0.40	0.43	0.45	0.47	0.50	0.52	0.55	0.57	0.60	0.63	0.67	0.71	0.75	0.80	0.84
0.7	0.18	0.21	0.24	0.27	0.30	0.33	0.35	0.38	0.42	0.44	0.47	0.50	0.52	0.55	0.58	0.61	0.64	0.67	0.70	0.74	0.78	0.82	0.88	0.93	0.98
0.8	0.21	0.24	0.27	0.31	0.34	0.37	0.41	0.44	0.48	0.51	0.54	0.57	0.60	0.63	0.66	0.70	0.73	0.76	0.80	0.84	0.89	0.94	1.00	1.07	1.14
0.9	0.23	0.27	0.31	0.34	0.38	0.42	0.46	0.49	0.54	0.57	0.61	0.64	0.67	0.71	0.75	0.78	0.82	0.86	0.90	0.95	1.00	1.06	1.13	1.20	1.27



D 86 – 07

X4. PROCEDURE TO EMULATE THE EMERGENT STEM ERROR OF A MERCURY-IN-GLASS THERMOMETER

X4.1 When an electronic or other sensor without an emergent stem error is used, the output of this sensor or the associated data system should emulate the output of a mercury-in-glass thermometer. Based on information supplied by four manufacturers of automated Test Method D 86 equipment, the averaged equations shown in X4.2 and X4.3 have been reported to be in use.

X4.1.1 The equations shown in X4.2 have limited applicability and are shown for information purposes only. In addition to the correction for the emergent stem, the electronic sensor and associated data system will also have to emulate the lag in response time observed for mercury-in-glass thermometers.

X4.2 When a low range thermometer would have been used, no stem correction is to be applied below 20°C. Above this temperature, the correction is calculated using the following formula:

$$ASTM\ 7C\ T_{elr} = T_t - 0.000162 \times (T_t - 20^\circ C)^2 \quad (X4.1)$$

X4.3 When a high range thermometer would have been used, no stem correction is to be applied below 35°C. Above this temperature the correction is calculated using the following formula:

$$ASTM\ 8C\ T_{ehr} = T_t - 0.000131 \times (T_t - 35^\circ C)^2 \quad (X4.2)$$

where:

T_{elr} = emulated temperature in °C for low range thermometers,

T_{ehr} = emulated temperature in °C for high range thermometers, and

T_t = true temperature in °C.

X5. EXPLANATORY REPORT FORMS

X5.1 Fig. X5.1 and Fig. X5.2 show report forms.



D 86 – 07

"Percent Recovered" Report Form

Date: _____
 Time: _____
 Operator: _____

Ambient temperature (°C) _____
 Atmospheric pressure (kPa) _____
 Condenser temperature (°C) _____
 Temperature of the bath
 around receiving cylinder (°C) _____

	Percent Recovered	Corrected Temperature Reading (°C)	Time or mL / min
	IBP		
	5		
	10		
	15		
	20		
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
	70		
	75		
	80		
	85		
	90		
5 ml residue	95		
FBP			

Percent Recovery _____
 Percent Residue _____
 Percent Total Recovery _____
 Percent Loss _____
 Corrected Percent Recovery _____
 Corrected Total Recovery _____

Comments:

Ambient temperature at the start of the test

Ambient barometric pressure at the start of the test

Volume of condensate observed in the receiving cylinder at any point in the distillation, expressed as a percentage of the charge volume, in connection with simultaneous temperature reading

Temperature measuring device readings which are corrected to 101.3 kPa barometric pressure

Group 1, 2 & 3: 5 to 10 minutes
Group 4: 5 to 15 minutes

Group 1 & 2: 60 to 100 seconds

4 to 5 ml / min uniform average rate from 5% recovered to 5 ml in flask

Volume of condensate observed in the receiving cylinder when the 5ml conditions are reached

Volume of condensate observed in the receiving cylinder when the final boiling point is observed

Maximum percent recovered

Volume of residue in the flask expressed as a percentage of the charge volume

Combined Percent Recovery and Percent Residue in the flask

Time from 5 ml in flask to FBP = < 5 minutes

100 minus the Total Recovery

Percent Recovery corrected for barometric pressure

Percent Loss corrected for barometric pressure

Combined Percent Recovery and Percent Residue in the flask corrected for barometric pressure

FIG. X5.1 Percent Recovered Report Form